Chapter 3 – Affected Environment and Consequences

A. Introduction

This chapter addresses the positive and negative social, environmental, and economic impacts of the alternatives carried forward for further analysis from Chapter 2. Section B of this chapter identifies the resources analyzed for effects. Section C discusses those resources not analyzed for effects along with a brief explanation as to why. Sections D and E discuss how effects were analyzed and how mitigation was identified. Section F presents a summary of the effects presented in this chapter. Finally, Section G describes the affected environment for each resource identified in Section B, discusses the direct, indirect, temporary, and cumulative effects the No Action and build alternatives have to those resources, and presents specific mitigation to be incorporated into the build alternatives to offset any effects. This information may summarize technical reports prepared for the proposed project. A list of available technical reports appears in **Appendix D**. Some of the information in the technical reports may differ from that presented in this EA where the proposed project information, design, or analyses have been updated. In the last section of this chapter, Section H, a preliminary evaluation is given as to whether the impacts from the build alternatives identified in this chapter affect any resource "significantly" as defined in 40 CFR part 1508.27 of the implementing regulations for NEPA.

B. Environmental Resources Discussed in this Environmental Assessment

The FHWA used a scoping process to identify key issues associated with the proposed Devils Lake Phase II Project. The scoping process included a public meeting in September 2006 and several meetings among the PDT, PST, and various resource agencies, as well as a number of field surveys. Chapter 6 presents a more detailed account of scoping and coordination efforts. As a result of the scoping process, the PDT identified the following key issues for the proposed project:

- Social and Economic Resources including—
  - Transportation
  - Utilities
  - Relocation
  - Land Use and Ownership
  - Agricultural Land
  - Prime, Unique, and Important Farmland
  - SLN Trust Assets
  - Economic Resources
  - Social Resources
  - Environmental Justice
- Wetlands and Waters of the U.S.
- Water Quality
- Floodplains
- Threatened and Endangered Species
- Cultural Resources
- Hazardous Materials

- Visual Quality
- Section 4(f) Resources

C. Environmental Issues with Negligible, Minimal, or No Effects

During the scoping process the following environmental issues were reviewed and found to have negligible, minimal, or no effects:

- Noxious Weeds—Roadway construction activities have the potential to spread or introduce unwanted vegetation. Cleaning equipment and using weed-free erosion control and revegetation materials would minimize the potential for adverse effects.

- Vegetation—Clearing of vegetation would take place in areas where roads, RAADs, or perimeter dams are to be expanded or constructed, especially in the St. Michael area. Resource agencies have requested mitigation of trees of a certain diameter in North Dakota. This mitigation typically takes the form of replacing trees. The preferred alternative involves the removal of up to 75 acres of woodland. The No Action alternative would, however, result in many more acres being flooded. FHWA will coordinate with the resource agencies to determine appropriate mitigation.

- Fish and Wildlife—Numerous fields and wetlands, typically palustrine emergent, are located within the project area. The open water lakes and wetlands offer habitat to a variety of fish, reptiles, and amphibians, including turtles, snakes, frogs and toads, and various bird species including shore birds, songbirds, and raptors. Upland habitat types shelter mammal species including rabbit, muskrat, raccoon, skunk, and white-tailed deer. Although construction may temporarily dislocate fish and wildlife, and some fish and wildlife habitat would be replaced with roadway, RAADs, or perimeter dam structures, the impacts to fish and wildlife habitat and populations are expected to be minor relative to the overall Devils Lake area. Loss of wetland and woodland habitat under any build alternative will be substantially less than that of the No Action alternative. FHWA will work with resource agencies to determine appropriate mitigation for the unavoidable loss of wetlands and woodlands.

- Noise—Construction noise would be temporary, and the contractor's equipment would be properly muffled.

- Air Quality—This project is not in an Environmental Protection Agency-designated non-attainment or maintenance area for any of the criteria pollutants. The proposed project would not induce traffic growth and, therefore, is consistent with the North Dakota State Implementation Plan for Air Quality. Best Management Practices (BMPs) would be implemented to minimize fugitive dust and wind erosion during construction.

- Wild and Scenic Rivers—There are no Wild and Scenic Rivers located in the project area.

- Bicyclist and Pedestrian Issues—Impacts to bicyclists or pedestrians are expected to be temporary due to construction. The proposed project would have no long-term effects to these users.

- Section 6(f) Properties—Section 6(f) properties are those purchased with Land and Water Conservation Act Funds. There are no such properties within the project area.

- Recreation—This project is expected to have a minimal positive impact on recreation. Currently, the area is a popular fishing and hunting destination. Construction of any of the build alternatives would maintain access throughout the area for hunters and anglers.

D. Method of Analysis

For each environmental resource identified in Section B, direct, indirect (secondary), and temporary construction impacts are addressed. Cumulative effects are addressed in a separate section following the resource-specific discussions. Direct effects are those effects that result immediately due to the proposed project. Indirect effects are those that result solely from the proposed project but occur over a longer period of time. Temporary effects are typically those that occur while construction activities are taking place and such effects end when construction is completed or shortly thereafter. Cumulative effects are those that might occur in conjunction with other activities occurring in the project area.

Typically, when evaluating effects of a project, the existing or current condition of each resource is described and the impacts each alternative has on the existing condition is presented. The difficulty associated with this project is that the existing condition is not static with respect to the Lake elevation. During the time period this document was written, from the spring of 2007 to the spring of 2008, the elevation of Devils Lake fluctuated between 1,447 and 1,449 feet, making it difficult to select a lake elevation that would serve as the baseline against which effects could be identified and evaluated. Another difficulty in selecting the lake elevation for the effects analysis is that the effects to be addressed in this document should be those that occur at the time of construction, not those during the time this document was written. Construction is anticipated to begin in 2009 so it would be ideal to predict what the Lake elevation will be in 2009 and use that as the baseline for our effects analysis. Unfortunately, as discussed in Chapter 1, while Devils Lake is anticipated to continue to rise, it is not possible to predict how much it will rise in any given year. Given these difficulties, the FHWA, in consultation with the PDT, elected to use the most recent high water mark posted on May 9, 2006 of 1,449.2 feet to serve as the "current condition" for the effects analysis. This high water mark was rounded to the nearest foot of 1,449 feet for this analysis. It is understood that this "current" condition might be different at the time of construction, and if this is the case, then the mitigation that is based on the effects analysis would be adjusted accordingly.

A second lake elevation of 1,460 feet is also used in analyzing the effects of the alternatives. Given that the purpose of the proposed project is to maintain regional transportation access at the ultimate lake elevation of 1,459 feet, it is useful to show the effects of the No Action and build alternatives at this ultimate lake elevation. As explained in Chapter 2, the elevation was rounded up to 1,460 feet to account for the likely still water elevation on the western side of the Lake before the Lake starts draining with any great volume into the Tolna Coulee. By showing what occurs at an elevation of 1,460 feet under the No Action Alternative as well as the build alternatives, the reader should have a clearer understanding of how the build alternatives are intended to prevent the loss of the regional transportation network.

With regards to direct effects, there are two types that are evaluated in this document. The first type of direct effect is that which is associated with the construction of the RAADs, roads, and perimeter dams, and any construction activities associated with this action. These activities include the placement of cofferdams, pumping, the excavation of the existing RAADs or perimeter dams, placement of fill, the excavation of material sources, and the conversion of lands to ROW needed for the proposed project. As discussed in Chapter 2, only the typical sections needed for roads and dams to accommodate the Lake at its highest elevation of 1,460 feet are addressed. As a result, all impacts resulting from these ground disturbance activities will be for the 1,460 feet design elevation.

The second type of direct effect evaluated is the inundation that would immediately occur due to the equalization of RAADs. Equalization is proposed in Alternatives 1-A, 3-A, and 4-A. The case could be made that the inundation is not really an effect of equalizing the roads but rather the result of a natural condition, the lake waters rising, or a Force Majeure (an Act of God). Had the RAADs not had their culverts plugged, this inundation would have already occurred as a consequence of a natural, not manmade, event. Nevertheless, because the equalization proposed in Alternatives 1-A, 3-A, and 4-A would likely result in impacting social and economic resources by immediately inundating homes, property, and some infrastructure, the FHWA has decided that these social and economic effects would be identified in this chapter and mitigated for by the proposed project.

For analysis purposes, it is assumed that lands up to 1,449 feet would be immediately inundated. Lands between 1,449 feet and 1,460 feet may become inundated, but this effect would not be immediate as it would require the Lake to continue to rise. Inundation that may occur between 1,449 and 1,460 feet is not considered an effect of the proposed project, but rather an effect of the natural condition of the lake waters rising, since this effect would occur even if the proposed project was not constructed. As a result, these effects would not be mitigated for by the proposed project. It would be recommended that homeowners and businesses between the elevations of 1,449 and 1,460 acquire or maintain flood insurance under FEMA's flood insurance program to offset the costs of any flooding, should the Lake continue to rise above 1,449 feet as expected. In the individual resource sections, the effects of immediate inundation due to equalization of RAADs up to 1,449 feet elevation are presented as "direct effects." The effects of the eventual inundation that would result from the lake waters rising are identified as "Effects Due to Rising Lake Waters."

In consultation with the multiple environmental resource and regulatory agencies and the PDT, the FHWA determined that inundation due to equalization of RAADs was not an invasive or permanent impact requiring mitigation for the following resources:

- Prime, Unique, and Important Farmlands
- Wetlands
- Water Quality
- Floodplains
- Threatened and Endangered Species
- Cultural Resources
- Visual Resources

As a result, the impacts of inundation at any lake level, 1,449 or 1,460 feet, for these resources were not quantified. These resources were evaluated only for impacts resulting from the construction of the RAADs, roads, and perimeter dams. All other resources were evaluated for construction impacts and the effects associated with the inundation due to equalization.

Additionally, some resources sections discuss "added benefit of protection" provided by some of the build alternatives. This refers to the concept that those build alternatives that include the construction of roads as dams or perimeter dams would afford some resource protection that would not otherwise occur under the No Action Alternative, or under build alternatives involving equalization. This protection, though not required by the purpose and need, is considered an added benefit.

E. Mitigation

Mitigation and conservation measures would be incorporated into the Preferred Alternative to minimize potential impacts on the resources discussed in the EA. Mitigation measures have been developed in cooperation with the PDT and the PST and would be implemented by the FHWA, the BIA, and the SLN. Where appropriate, FHWA will coordinate with the resource agencies to determine appropriate mitigation plans. Mitigation measures for all resources are summarized in Chapter 4.

F. Summary of Impacts, Benefits, and Costs

The tables on the following pages in this section contain summaries of effects, added benefits, and costs for each alternative (**Tables 3-1 through 3-4).** For a full discussion of the information contained in these tables, please see Section G.

Table 3-1. Summary of Impacts under the No Action Alternative

Resource	Impacts
Infrastructure (Transportation and Utilities)	**Roads Prone to Failure** – Portions of ND 20 and ND 57 and portions of BIA 1, 2, 4, and 5. **Roads Inundated** – Military Road, Portions of BIA 1, 4, 6, 9, and 16. **Utilities Inundated** –Waterline under BIA 1, telephone and power lines along portions of ND 20 and ND 57 and portions of BIA 1, 2, 4, 5, 9, and 19, and Military Road.
Employment and income	Loss of access to major employers including Spirit Lake Casino and Camp Grafton. Triple the travel distance from Fort Totten to the city of Devils Lake.
Lands inundated (acres)	2,067 acres at lake elevation of 1,449 feet / 5,025 acres at a lake elevation of 1,460 feet.
Relocation due to inundation (number)	131 residences, four businesses at lake elevation of 1,449 feet / 258 residences, four businesses at a lake elevation of 1,460 feet.
Agricultural lands inundated (acres)	785 acres at a lake elevation of 1,449 feet / 1,857 acres at a lake elevation of 1,460 feet.
Trust lands and allotments inundated (acres)	156 acres of tribal trust and 851 acres of allotted trust land at a lake elevation of 1,449 feet / 395 acres of tribal trust and 1903 acres of allotted trust land at a lake elevation of 1,460 feet.
Environmental justice	EJ considerations apply only to actions taken by an agency.
Wetlands & waters of the U.S.	None filled.
Water quality	Overtopping and/or failure may result in minor impacts to water quality. Construction under emergency conditions may result in temporary impacts to water quality.
Floodplains	No effect.
T&E & sensitive species	No effect.
Cultural resources	No effect to identified resources.
Hazardous materials	Unless hazardous materials are removed, some would be inundated.
Visual quality	Residents' and motorists' views would be increasingly dominated by the rising lake waters.
WPA & wetland easements resources inundated (acres)	Zero acres at lake elevation of 1,449 feet / 174.8 acres at an elevation of 1,460 feet.

Table 3-2. Summary of Added Benefits of Land and Residential Protection Under the Build Alternatives up to Lake Elevation of 1,460 Feet

	Zone 1	Zone 2 (Up to 1,460 feet)					Zone 3 (Up to 1,460 feet)		Zone 4 (Up to 1,460 feet)		Commonly Protected Area[1]
	Alt 1-A	Alt. 2-A	Alt. 2-B	Alt. 2-C	Alt. 2-D	Alt. 2-E	Alt. 3-A	Alt. 3-B	Alt. 4-A	Alt. 4-B	
Land use (total lands protected from inundation [acres])	0	270	256	0	815	329	0	341	0	433	2,175
Residences protected (number)	0	23	23	0	36	26	0	1	0	15	84
Businesses protected (number)	0	0	0	0	0	0	0	0	0	1	1
Agricultural land (acres)	0	62	62	0	317	70	0	64	0	102	1.090
Tribal trust land (acres)	0	0	0	0	27	0	0	31	NA	NA	262
Allotted trust land (acres)	0	67	53	0	418	121	0	108	NA	NA	920
Section 4(f) resources (acres)	0	11	11	3.4	21	21	5	0.6	0	0	440

*Gray-shaded columns represent the preferred alternatives in each Zone

1 Any combination of the build alternatives would maintain BIA Roads 4 and 5 as dams in Zone 1, prevent inundation from the east in Zone 2 by the use of either perimeter dams or constructing ND 20 as a dam in Zone 2, and construct the new Spring Lake perimeter dam in Zone 3. As a result, the Commonly Protected Area that is encompassed by these structures is protected regardless of the build alternatives selected. For more information please see the *Social and Economic Resources* section of this chapter.

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Table 3-3. Summary of Impacts under the Build Alternatives up to a Lake Elevation of 1,449 Feet Elevation

RESOURCES IMPACTED		ZONE 1	ZONE 2					ZONE 3		ZONE 4	
		Alternative 1-A	Alternative 2-A	Alternative 2-B	Alternative 2-C	Alternative 2-D	Alternative 2-E	Alternative 3-A	Alternative 3-B	Alternative 4-A	Alternative 4-B
Transportation		Approximately 30 miles of state, BIA, and local roads protected. Alternative 2-D protects an additional 1.3 miles of a township road.									
Utilities	Inundated due to equalization of RAADs	Otter Tail Power, Nodak Power	NA	NA	NA	NA	NA	Nodak Power	NA	Otter Tail Power, Nodak Power, ND Telephone, Greater Ramsey Water District	NA
	ROW acquisition	ND Telephone, Nodak Power, and Otter Tail Power lines	ND Telephone, Nodak Power, and Spirit Lake Water lines	ND Telephone, Nodak Power, and Spirit Lake Water lines	ND Telephone and Nodak Power lines	ND Telephone and Nodak Power lines	ND Telephone and Nodak Power lines	ND Telephone and Nodak Power lines	ND Telephone and Nodak Power lines	ND Telephone and Nodak Power lines	ND Telephone and Nodak Power lines
Estimated relocations (number)	Inundated or loss of access due to equalization of RAADs	4	0	0	0	0	0	1	0	7 residences 1 business	0
	ROW acquisition (all residences)	1	4	4	4	1	1	1	1	3	3
Land use and ownership (acres)	Inundated due to equalization of RAADs	24	0	0	0	0	0	279	0	151	0
	ROW acquisition	49	105	101	93	186	126	77	60	35	25
Agricultural land (acres)	Inundated due to equalization of RAADs	9	0	0	0	0	0	32	0	41	0
	ROW acquisition	4	11	13	17	29	9	32	44	3	0
Prime, unique, important farmland (acres)	ROW acquisition	1	12	10	16	20	8	13	19	12	4
SLN trust assets (acres—tribal/allotted	Inundated due to equalization of RAADs	0/11	0	0	0	0	0	24/51	0	NA	NA
	ROW acquisition	2/32	0/54	0/46	4/45	8/88	0/71	13/12	12/9	NA	NA
Economic resources		Access to key employment centers including Spirit Lake Casino and Camp Grafton, and between St. Michael and the city of Devils Lake are maintained with any combination of build alternatives. The project generates between 84 and 141 construction-related jobs and 45 to 53 non-construction related jobs. The proposed project would generate between $61 and $76 million in non-labor income.									
Social resources		Any combination of the build alternatives would maintain access to key social services. No alternative would affect the cohesion of the St. Michael community.									
Environmental justice		Minority/low income population is located in Zones 1, 2, and 3. No minority/low income population is located in Zone 4. Despite the difference in demographics between Zone 4 and Zones 1, 2, and 3, there is no disproportionate adverse effect to the minority/low income population regardless of the combination of build alternatives.									
Wetlands filled (acres)		24.3	10.6	10.7	16.4	13.5	9.9	12.0	14.0	9.3	1.4
Waters of the U.S. (acres)		31.9	8.6	8.6	17.2	8.5	7.9	26.6	26.5	7.7	7.5
Water quality		Construction activities may result in temporary impacts to water quality. These impacts would be minimal due to the use of cofferdams and best management practices. Riprap would prevent the introduction of sediment into Devils Lake.									
Floodplains		All build alternatives are located within the floodplain (below 1,450 feet). Non-structural development permit required. Construction of any combination of the alternatives would not cause a measurable increase to the 100-year base flood elevation.									
T&E species and sensitive species		Bald eagle may be disturbed if nesting occurs in the project area. Will coordinate with USFWS to avoid disturbing nesting bald eagle.									
Cultural resources		No sites identified	1 possible eligible site avoided		No sites identified	2 possible eligible sites avoided	1 possible eligible site avoided	No sites identified			
Hazardous materials (number of sites)	Inundated due to equalization of RAADs	0	NA	NA	NA	NA	NA	No sites	NA	No sites	NA
	ROW Acquisition	4	2	2	0	10	7	3	3	6	5

RESOURCES IMPACTED		ZONE 1	ZONE 2					ZONE 3		ZONE 4	
		Alternative 1-A	Alternative 2-A	Alternative 2-B	Alternative 2-C	Alternative 2-D	Alternative 2-E	Alternative 3-A	Alternative 3-B	Alternative 4-A	Alternative 4-B
Visual Quality		Roads raised in some areas by 16 feet; affects short-distance views of six residences adjacent to BIA 4	No impact to residences due to relocation	Longie Dam 2 would add a new element to residences' short-distance just north of BIA 2	ND 20 raised by as much as 13 feet; some effect on short-distance view of residences adjacent to the road	One residence' short-distance view and 1 residence mid-distance view affected	One residence short-distance view affected	Up to two residences may have their short-distance views affected	Up to two residences may have their short-distance views affected	Short-distance views are not affected. Remaining nearby residents would have views of the Lake and the roads	Road would be a more dominant feature of approximately 14 residences' short- and mid-distance views
Section 4(f) resources – WPA (Zone 2) and wetland easements (Zone 3)	4(f) use filled (acres)	NA	10	10	17.6	0	0	1.4	3.1	NA	NA
	4(f) use inundated (acres)	NA	0	0	0	0	0	5	3.3	NA	NA

*Gray-shaded columns represent the preferred alternatives in each Zone

Table 3-4. Summary of Costs for Each Build Alternative in Each Zone to Build to Ultimate Roadway Elevation of 1,468 Feet

	Zone 1	Zone 2					Zone 3		Zone 4	
	Alt 1-A	Alt 2-A	Alt 2-B	Alt 2-C	Alt 2-D	Alt 2-E	Alt 3-A	Alt 3-B	Alt 4-A	Alt 4-B
Operations and maintenance costs	$136,000	$149,000	$145,000	$144,000	$197,000	$129,000	$81,000	$118,000	$33,000	$83,000
ROW acquisition*	$24,700	$52,250	$50,000	$46,100	$91,550	$63,050	$29,650	$38,250	$17,650	12,550
Utility relocation due to inundation	TBD	0	0	0	0	0	TBD	0	TBD	0
Utility relocation due to ROW needs	TBD	TBD	TBD	TBD	TBD	TBD	TBD	0	TBD	TBD
Relocation/mitigation due to inundation*	$600,000	0	0	0	0	0	$150,000	0	$1,800,000*	0
Relocation due to ROW acquisition*	$150,000	$600,000	$600,000	$600,000	$150,000	$150,000	$150,000	$150,000	$450,000	$450,000
Wetlands (includes 4(f) resources)*	$121,500	$53,000	$53,500	$82,000	$67,500	$49,500	$60,000	$70,000	$46,500	$7,000
Hazardous materials*	$40,000	$10,000	$10,000	0	$110,000	$70,000	$30,000	$30,000	$60,000	$60,000
MITIGATION, ROW, AND O&M COSTS	**$1,072,200**	**$864,250**	**$858,500**	**$872,100**	**$616,050**	**$461,550**	**$500,650**	**$406,250**	**$2,407,150**	**$612,550**
Preliminary construction costs (PCC)*	$98,000,000	$55,000,000	$52,000,000	$68,000,000	$49,000,000	$34,000,000	$45,000,000	$54,000,000	$33,000,000*	$31,500,000*
Preliminary and construction engineering costs (25% of PCC)	**24,500,000**	**13,750,000**	**13,000,000**	**17,000,000**	**12,250,000**	**8,500,000**	**11,250,000**	**13,500,000**	**8,250,000**	**7,850,000**
TERO (2.5% of PCC)*	**2,450,000**	**1,375,000**	**1,300,000**	**1,700.000**	**1,225,000**	**850,000**	**1,125,000**	**1,350,000**	**NA**	**NA**
TOTAL ESTIMATED COSTS	**$126,022,000**	**$71,589,250**	**$67,158,500**	**$87,572,100**	**$63,091,050**	**$43,811,550**	**$57,875,650**	**$69,256,250**	**$43,907,150**	**$39,462,550**

*Gray-shaded columns represent the preferred alternatives in each Zone
*Costs are estimated for construction in 2009. Costs are subject to change due to inflation or changes in the prices of materials.
* These costs address the purchase of land only; NOT the relocation of residences or businesses.
* Calculations are assumed to be $150,000 per residence identified in Table 3-2.
* This amount includes mitigation for seven homes estimated to be a total of $1,050,000 and the remainder is mitigation for impacts to NDNG's Camp Grafton Facilities estimated to be approximately $650,000.
* Calculations are assumed to be $150,000 per residence identified in Table 3-2.
* Assume wetland mitigation is $5,000 per credit.
* Assume $10,000 per site requiring cleanup. Sites should be cleaned up by homeowner.
* Construction costs are based on 15% design.
* 4-A Construction costs include the construction of a dam around Camp Grafton. Although this dam is not a part of this project, it will become necessary and so was included for purposes of comparison.
* 4-B Construction costs include the construction of three additional dams to be built north of Military road. Although these dams are not part of this project, they will become necessary if the Lake continues to rise and costs were included for purposes of comparison.
* TERO fees apply only to work performed within SLN.

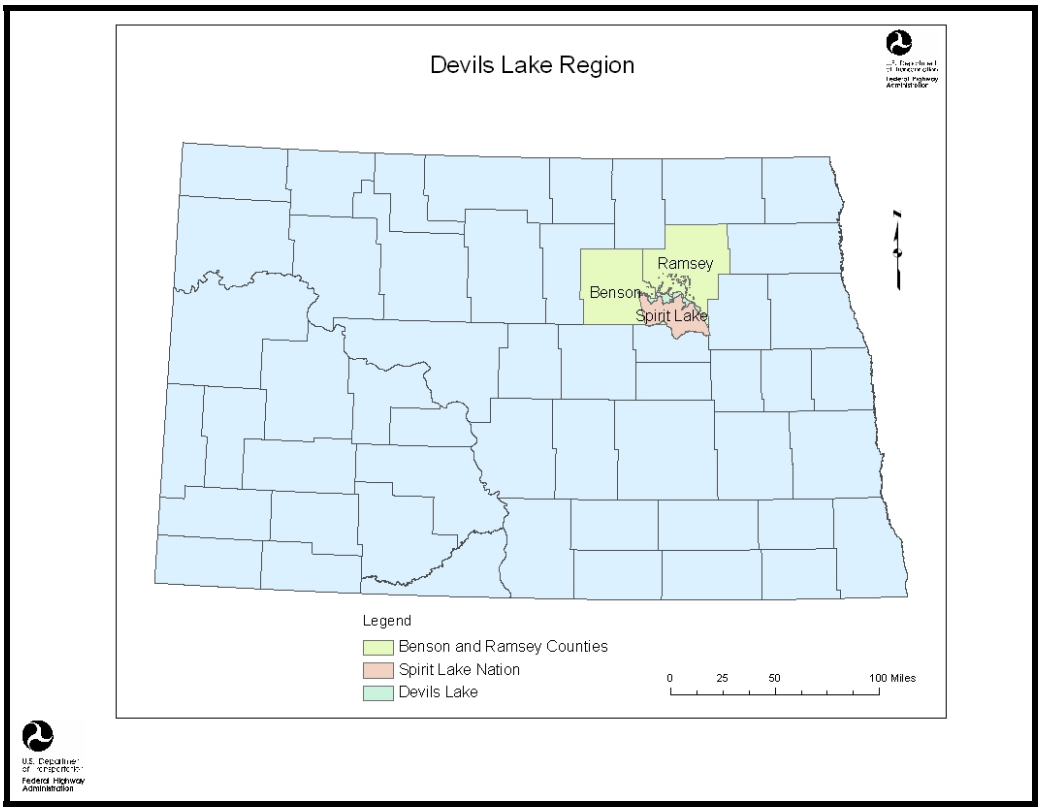
G. Effects Analysis

1. Social and Economic Resources

A social and economic technical study (*FHWA 2007b*) was prepared to describe the social and economic setting of the Devils Lake region and project area, and to determine whether any significant impacts would occur as a result of the proposed project.

For study purposes, the region consists of the SLN, Benson County, and Ramsey County (**Figure 3-1**). For socioeconomic resources, the project area comprises the Acorn Ridge area identified as the Ramsey County/Creel Township peninsula, south of 46th Street NE and 29th Street SW; and the St. Michael area located within the northeastern quadrant of the SLN (**Figure 3-2**).

Also within the St. Michael portion of the project area, there is an area identified as "Commonly Protected Area" **(Figure 3-2).** The Commonly Protected Area comprises approximately 47 percent of the project area and is provided protection under any combination of the build alternatives in Zones 1, 2, and 3. This is because any combination of these alternatives would maintain BIA Roads 4 and 5 as dams in Zone 1, prevent inundation from the east in Zone 2 by the use of perimeter dams or construction portions of ND 20 as a dam, and construct the Spring Lake perimeter dam in Zone 3. All



Source: North Dakota State Geographic Information System web portal, http://www.nd.gov/gis/

Figure 3-1. Devils Lake Region for Social and Economic Study Purposes

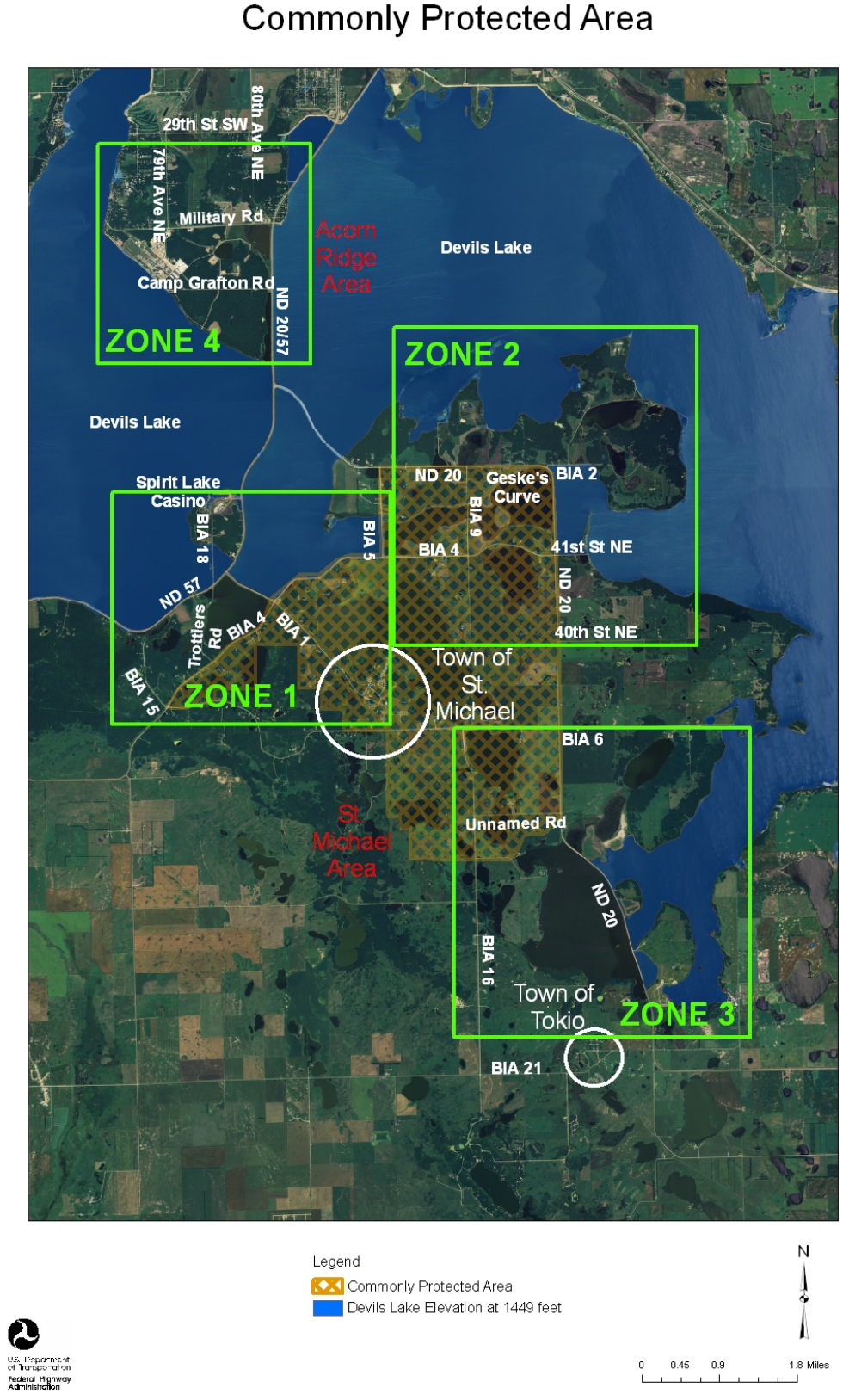


Figure 3-2. Social and Economic Study Area

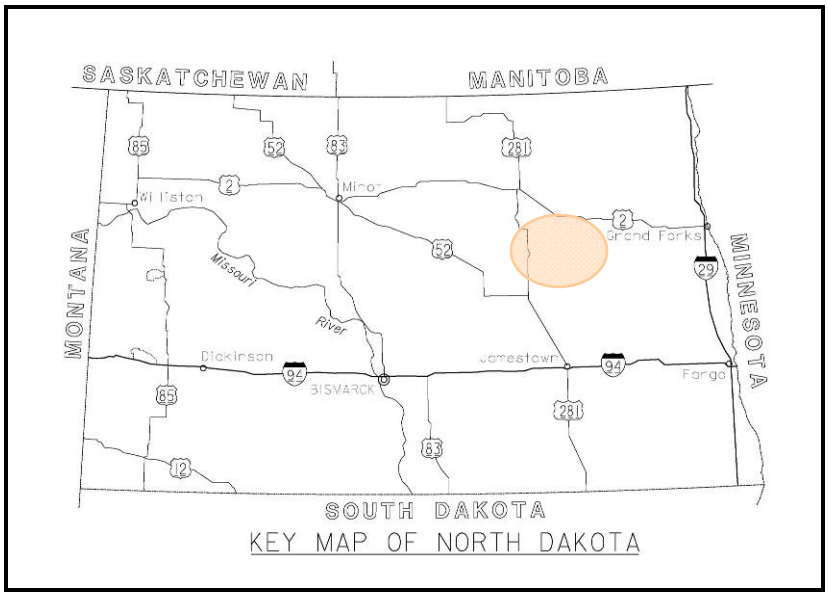
of these elements must be constructed in order for the transportation system and, consequently, various social and economic resources within the Commonly Protected Area to be protected. Because these beneficial effects to the Commonly Protected Area cannot be attributed to a build alternative in a single zone, the beneficial effects to the Commonly Protected Area are identified separately from the effects that can be attributed solely to a specific build alternative in each zone. As a result, those tables in this Chapter addressing the added benefit of protection provided by alternatives, **Tables 3-7, 3-11, 3-13, 3-16, 3-22, and 3-24,** identify the "Commonly Protected Area" separately from the individual alternatives given that it is a combination of build alternatives from Zones 1, 2, and 3 that make this added benefit possible.

Data collected at the regional level were derived primarily from the U.S. Census, U.S. Bureau of Labor Statistics, and the U.S. Department of Agriculture. Not all data sets were available for the SLN. Data collected at the project area level were derived from the government offices of the SLN, the BIA – Fort Totten Agency, Ramsey County, and Benson County. Data at the project area level also include geographic information system (GIS) application with 2005 aerial maps, 2003 aerial maps with data from the FEMA survey of structures, and land ownership maps from the BIA that have been updated during the EA study. Detailed source information is available in the Socio-Economic Technical Study prepared for this project (*FHWA 2007b*).

a) Transportation

(1) Affected Environment

The major north-south connector to the region is US Highway 281 connecting the western portion of the Devils Lake area with Jamestown and Interstate 94 to the south, and the Canadian border to the north **(Figure 3-3**). The major east-west connector to the region is US Highway 2, a multi-lane, divided highway connecting the City of Devils Lake to Grand Forks and Interstate 29 to the east, and Minot to the west. ND 57, located in the project area, is a two-lane highway connecting US Highway 281 to Fort Totten, ND 20, and points within the project area (**Figure 3-4**). ND 20 is a major north-south connector within the project area linking Ramsey County and the City of Devils Lake to SLN and ND 57. Daily traffic volume on ND 20 between Ramsey County and SLN alone is over 6,000 vehicles per day. ND 20 extends north to the Canadian border, and to points south including Tokio, Warwick, and Courtenay. Also, via US 281, ND 20 links the project area to Interstate 94 in the southern portion of North Dakota. Other roads within the project area include Military Road (also known as 45th Street NE), 29th Street SW, County Road 1, 79th Avenue NE, and 80th Avenue NE within the Acorn Ridge area. St. Michael area roads include BIA Roads 1, 2, 4, 5, 6, 9, 15, 16, and 21 (**Figure 3-2)**. All of these roads provide local access and commuter links to the larger area roads.



Source: US DOT, FHWA, Central Federal Lands Highway Division

General Area of Devils Lake Region

Figure 3-3. Major Roads to Devils Lake Region

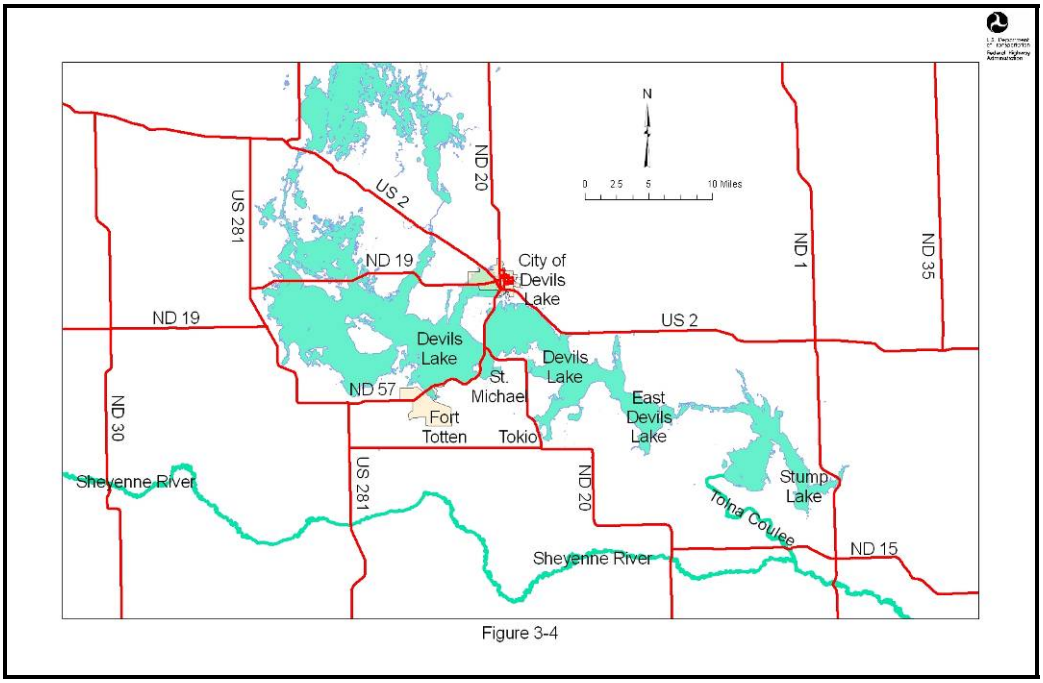


Figure 3-4. Major Roads to and from the Project Area

Public transportation is not available in Benson County or within the SLN. Amtrak provides daily service to and from the City of Devils Lake in Ramsey County through its "Empire Builder" route traveling between Chicago, Illinois and Seattle, Washington. Rimrock Bus Service connects the City of Devils Lake to Grand Forks. Further bus connections can be made in Grand Forks to the Jefferson Bus Line providing service to Winnipeg, Canada, and Texas. The Devils Lake Municipal Airport is

located to the west of the City of Devils Lake and provides commercial air service to the region with connections to Minneapolis/St. Paul International. Northwest Airlink is the carrier providing this service. North Plains Railroad provides rail freight services within the region. The Federal Aviation Administration (FAA) maintains an instrumentation tower in Zone 2 required for airport operations. The FAA plans to move this tower before it is inundated.

(2) Environmental Consequences

(a) No Action Alternative

At a lake elevation of 1,449 feet, if the RAADs were to fail, the regional road system within the project area would be impacted with the following portions of roads becoming impassable (**Figure 3-5**):

- ND 20 between Military Road and the main entrance to Camp Grafton in the Acorn Ridge area
- ND 57 between the Spirit Lake Casino and the intersection with BIA Road 15
- ND 20 at the Geske curve
- ND 20 between Unnamed Road and BIA Road 21
- BIA Road 1 from where it ends at ND 57 to where it intersects with BIA Road 4
- The western section of BIA Road 2
- BIA Road 4 from approximately one mile northeast of its intersection with BIA 15 to where it intersects with BIA Road 5
- BIA Road 5 from its intersection with BIA Road 4 to a half-mile north

In addition to these roads becoming impassable due to failure, the following roads would have portions that would be inundated:

- Military Road
- BIA Roads 1, 4, 6, 9, and 16

Under the No Action Alternative, inundation would eliminate access via ND 20 between the City of Devils Lake in Ramsey County and the SLN and Benson County. More specifically, in the project area, access within and between Zones 1, 2, 3, and 4 would be lost. Travel distances between population centers and the city of Devils Lake normally accessed via the RAADs would triple in some cases (**Figure 3-6** and **Table 3-5**). Additionally, Camp Grafton would become inaccessible via ND 20, and the eastern portion of Military Road would be inundated. The Spirit Lake

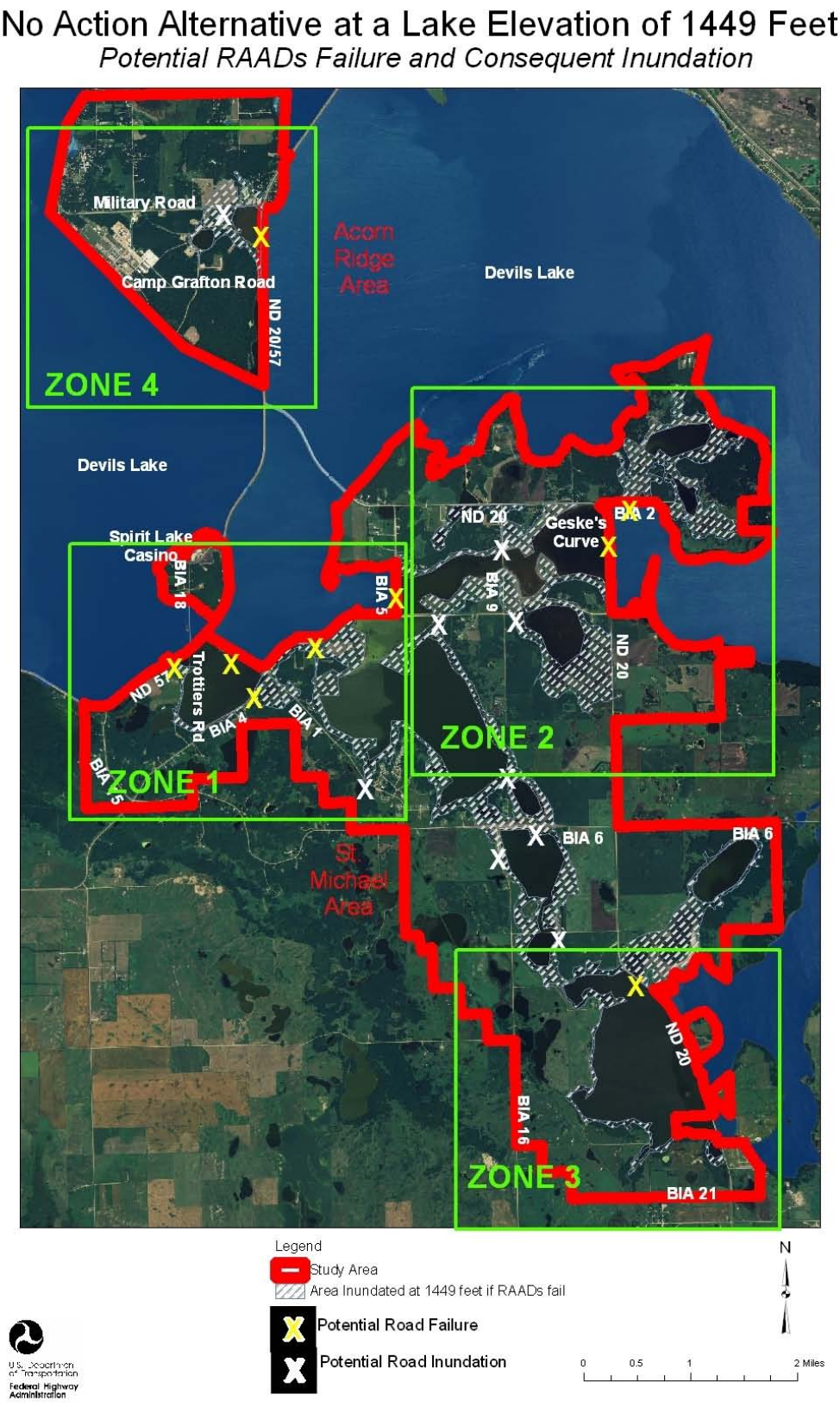


Figure 3-5. No Action Alternative at a Lake Elevation of 1,449 Feet

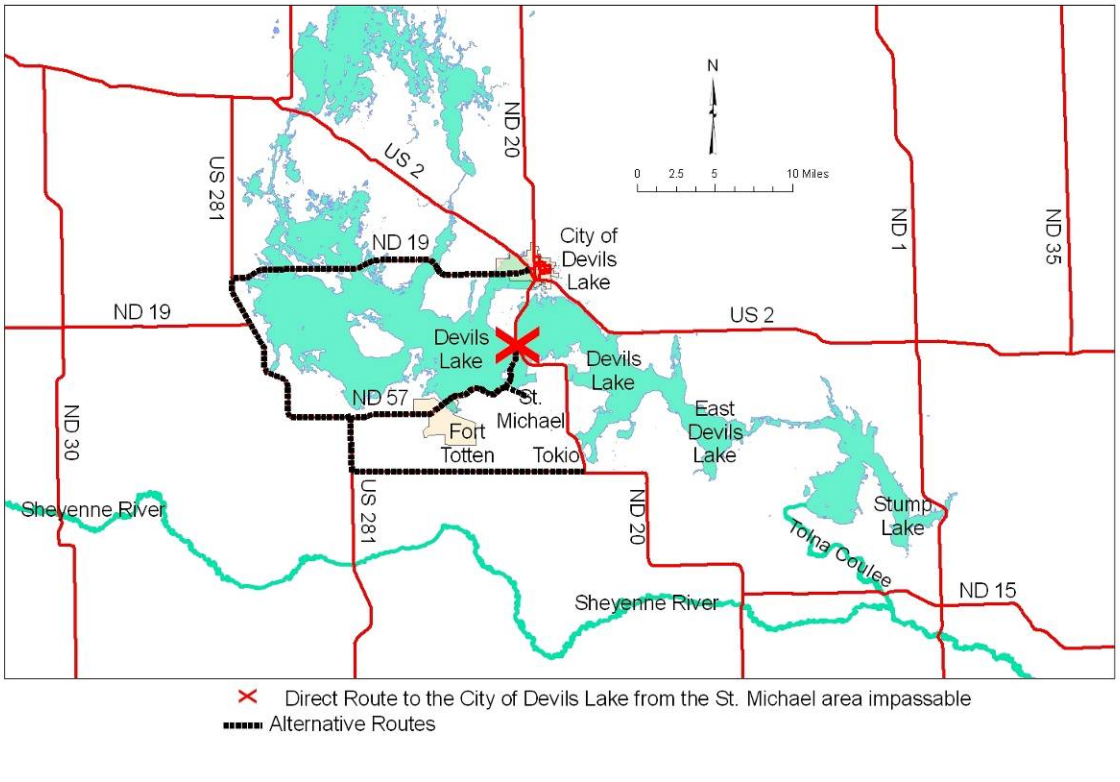


Figure 3-6. Alternative Routes to the City of Devils Lake from the St. Michael Area

Table 3-5. Alternative Route Travel Times between St. Michael to the City of Devils Lake

	Current		ND 20 Closure		Difference	
	Distance (miles)	Travel Time (min)	Distance (miles)	Travel Time (min)	Distance (miles)	Travel Time (min)
Fort Totten to Devils Lake	13.6	22	38.63	59	25.03	37
St. Michael to Devils Lake	10.47	20	45.22	69	34.75	49
Tokio to Devils Lake	17.38	32	52.53	85	35.15	53

All detours assume travel through Minnewaukan and to the city of Devils Lake via ND 19.

Casino and Resort would become inaccessible in the event of ND 20, ND 57, or BIA Road 1 failing. Terminals for public transportation – air, rail, and bus – which are located in the City of Devils Lake would be accessible from the southern portion of the project area only via US 281.

At a lake elevation of 1,460 feet, the existing RAADs and the perimeter dams would be overtopped and the same impacts discussed above would occur, but at a greater degree of severity (**Figure 3-7**). At this lake elevation, without access from RAADs

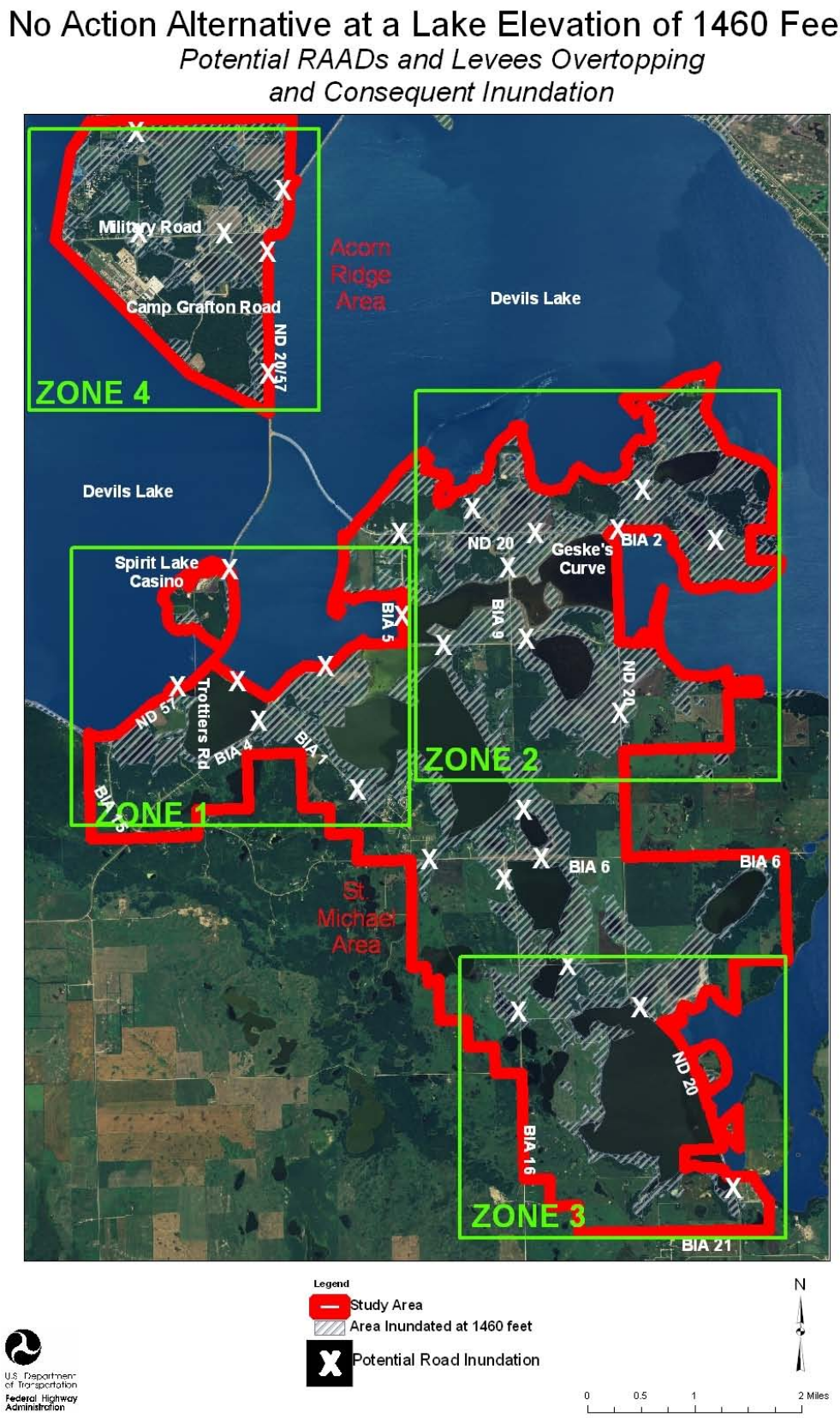


Figure 3-7. No Action Alternative at a Lake Elevation of 1,460 Feet

and the roads they currently protect, the Acorn Ridge area (Zone 4) would be completely inaccessible as would Zones 2 and 3 of the project area. As with the No Action Alternative at a lake elevation of 1,449 feet, travel distances between population centers and the City of Devils Lake would triple in some cases.

(b) Build Alternatives

Direct and Indirect Effects

Any combination of the build alternatives would protect almost 30 miles of state, BIA, and local roads. Alternative 2-D would protect an additional 1.3 miles of a township road. Trottiers Road, a dead end road, provides access to four residences in Zone 1 and would be inundated at a lake elevation of 1,449 feet under Alternative 1-A, the Preferred Alternative. Direct access via ND 20 to public transportation terminals in the City of Devils Lake would remain.

Continual use of local roads for the transportation of project personnel and materials may cause some use damage to these roads. Roads intended for use as haul roads will be assessed before and after construction and repairs will be made to return the roads to their pre-construction condition.

Temporary Effects

Construction of any of the build alternatives would cause traffic delays and detours, which would temporarily affect access within the project area. This would impose negligible impacts to public transportation services.

Mitigation

Should loss of access to residences and business occur where inundation immediately happens because RAADs are equalized, this access would be established elsewhere, or if the impacts are severe enough, the residences or businesses would be given the option of being compensated and relocated in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), as amended. Under this option the residences and businesses would no longer retain ownership of their property. For more information, please see the section titled *Relocation*.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet, the rising lake waters are not anticipated to have any effect to the regional transportation network in conjunction with any of the build alternatives. The rising lake waters may further impact access to residences and businesses.

b) Utilities

(1) Affected Environment

The project area is served by a number of utility companies. The City of Devils Lake operates a water transmission line that provides drinking water to the city and that runs along portions of ND 20 and along the old railroad grade within the St. Michael area. A new water transmission line is being planned for the City of Devils Lake and will be located in the vicinity of US Highway 2 to the north and east of the project area. The current water line will be used as a backup once the new water line is operational. The SLN operates a water transmission line that serves the Spirit Lake Casino and Resort. This water line is located within the project area along the ROWs of BIA Roads 1 and 4 (**Figure 3-8)**. A new water transmission line is being planned for the Casino, though details on its location have not been finalized. A sewage lift station, owned by the Greater Ramsey County Water District, is located in Acorn Ridge which provides sewer service to several houses.

Electric service is provided by Nodak Electric Cooperative and Otter Tail Power for both the Acorn Ridge and St. Michael areas. The North Dakota Telephone Company provides telephone land-line service and fiber optic cable service throughout the project area. MidContinental Cable provides fiber optic cable services to Camp Grafton (**Figure 3-8**). Although the Montana Dakota Utilities provides gas-line services to areas within the region, there are no gas-line services within the project area. Natural and propane gas is purchased from private companies. Camp Grafton provides their own utilities and uses some public utility services as well. Otter Tail Power owns a power substation that is located south of Spirit Lake Casino and adjacent to ND 57.

(2) Environmental Consequences

(a) No Action Alternative

At a lake elevation of 1,449 feet, if the RAADs were to fail, the electric and water utilities within the project area would be impacted. The water line below BIA Road 1 would also be jeopardized under this alternative. Because the majority of roads in the project area would be impassable, utility companies would encounter difficulties maintaining their systems. This includes the City of Devils Lake water line and several electric lines.

At a lake elevation of 1,460 feet, the RAADs and the perimeter dams would be overtopped and impacts to those cited above for the No Action Alternative scenario at a lake elevation of 1,449 feet would occur, only more severely.

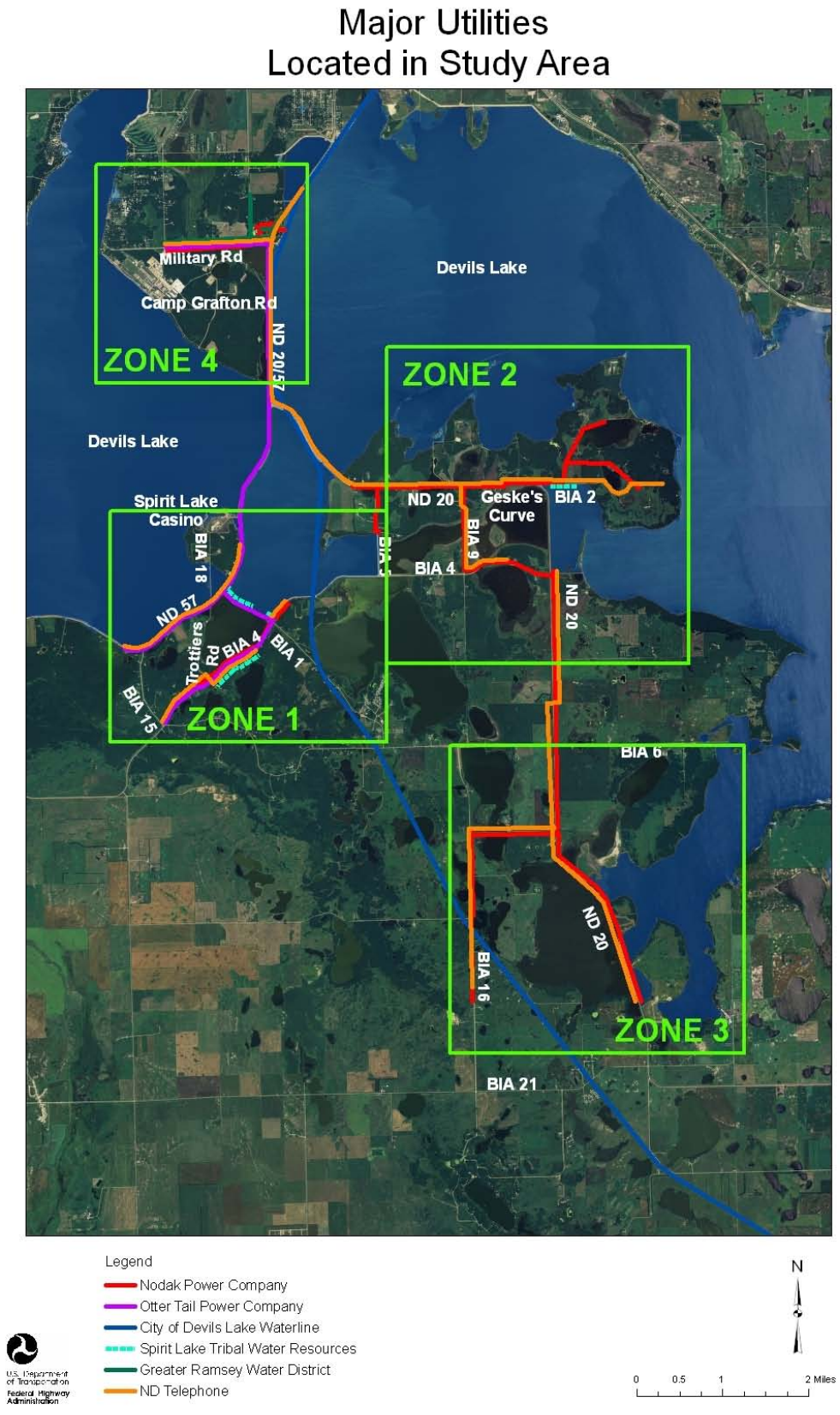


Figure 3-8. Major Utilities Located in Study Area

(b) Build Alternatives

Direct and Indirect Effects

ROW acquisition for the build alternatives would require the following utilities to be relocated:

- ND Telephone – all build alternatives
- Nodak Power – all build alternatives
- Otter Tail Power – Alternatives 1-A, 4-A, and 4-B
- City of Devils Lake waterline – Alternatives 4-A and 4-B
- Spirit Lake Tribe waterline – Alternatives 1-A, 2-A, and possibly 2-B
- Greater Ramsey waterline – Alternatives 4-A and 4-B
- Greater Ramsey lift station – Alternative 4-A. Relocation of this lift station may require mitigation for up to 10 residences which may lose access to the sewage system after it is moved.

In addition to utility relocations required due to ROW acquisition, some utilities may need to be relocated due to inundation that would occur as a result of equalizing RAADs in Alternatives 1-A, 3-A, and 4-A (**Figure 3-9**). These relocations would be coordinated during final design activities.

No indirect effects are anticipated to utilities as a result of any of the build alternatives.

Temporary Effects

During construction, short interruptions in service may occur. This would impose negligible impacts to utilities or their consumers in the project area.

Mitigation

Project proponents would coordinate with all utility companies that have service lines and facilities in areas potentially affected by the proposed project, either by inundation or construction. Through coordination with the utility companies, all utility impacts would be resolved to ensure continued service during and after the proposed project.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet to the ultimate elevation of 1,460 feet, the rising lake waters would likely have additional impact to the utilities identified in **Figure 3-9,** by further inundating them up to an elevation of 1,460 feet.

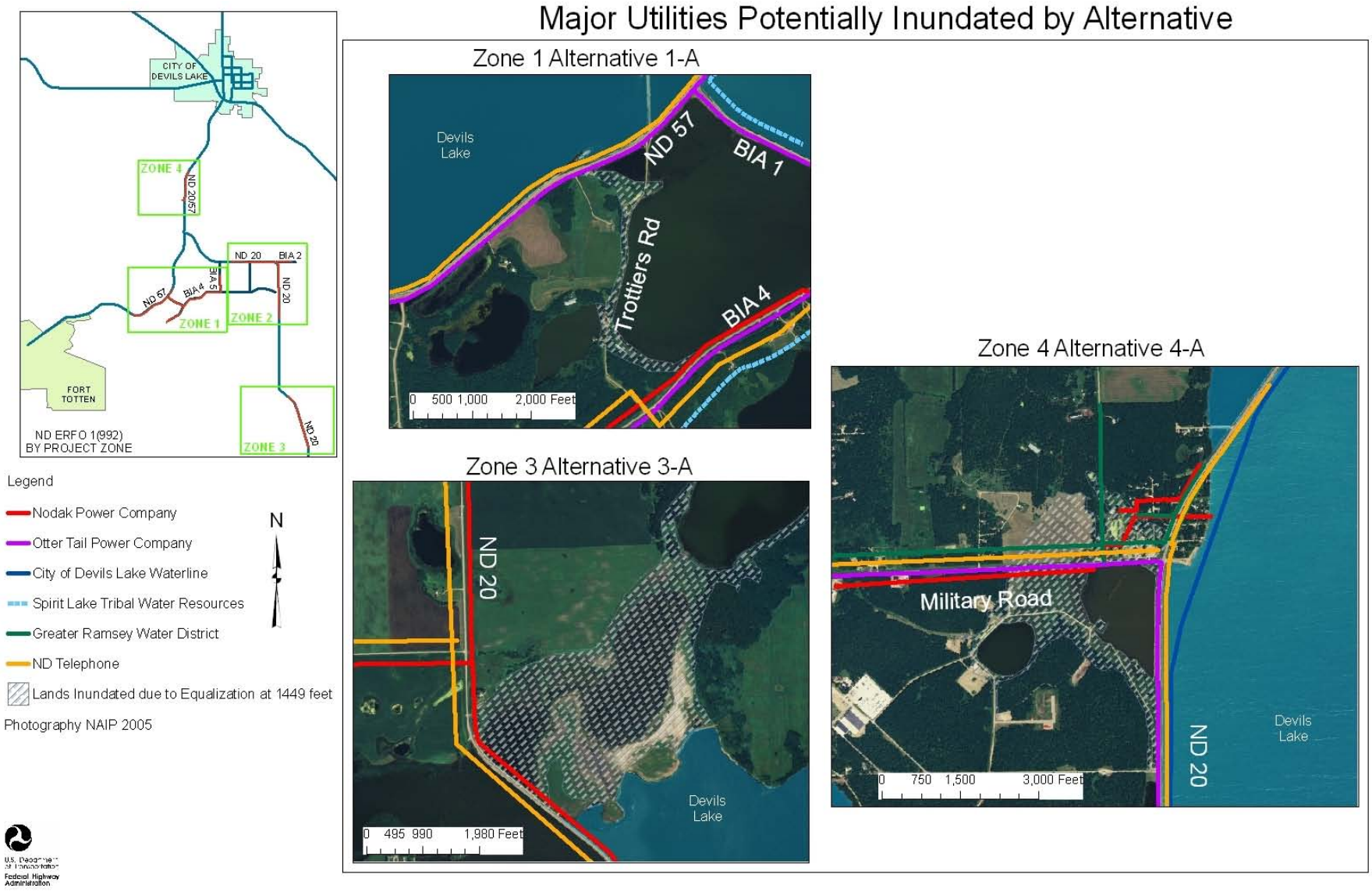


Figure 3-9. Major Utilities Potentially Inundated by Alternative

c) Relocation

(1) Affected Environment

Over the past 14 years, the region and the project area have experienced a large number of residential relocations as a result of the rising lake waters. The region has relocated an estimated 656 residences during this time period (Ramsey County - 450, Benson County - 177, SLN - 29 (*FHWA 2007b)*). A large number of homes were evacuated on the western shore of the Acorn Ridge area and within the St. Michael area. Presently, the RAADs protect, or allow access to, an estimated 258 residences and four businesses in the project area (**Figure 3-10**).

(2) Environmental Consequences

Estimated relocation impacts due to ROW acquisition and inundation are presented in **Table 3-6.** Under the build alternatives, the estimated

Table 3-6. Impacts to Residences and Businesses (number)

Alternative	Estimated ROW Relocations[1]	Estimated Residences Inundated or Loss of Access[2]	Estimated Businesses Inundated or Loss of Access[3]
No Action at 1,449 feet	NA	131	4
No Action at 1,460 feet	NA	258	4
Zone 1			
1-A	**1**	**4**	**0**
Zone 2			
2-A	**4**	**NA**	**NA**
2-B	**4**	**NA**	**NA**
2-C	**4**	**NA**	**NA**
2-D	**1**	**0**	**0**
2-E[4]	**1**	**0**	**0**
Zone 3			
3-A	**1**	**1**	**NA**
3-B	**1**	**0**	**NA**
Zone 4			
4-A	**3**	**7**	**1**
4-B	**3**	**0**	**0**
Most Impacts[5]	9	12	1
Least Impacts[6]	6	4	0

*Gray-shaded columns represent the preferred alternatives in each Zone

1 No businesses were identified as being relocated for ROW acquisition.
2 For build alternatives, inundation is due to RAADs equalization at lake elevation of 1,449 feet.
3 For build alternatives, inundation is due to RAADs equalization at lake elevation of 1,449 feet.
4 Equalization is proposed in this alternative but it would not cause any further inundation of the land currently protected.
5 "Most Impacts" refers to the combination of build alternatives that would produce the most relocations.
6 "Least Impacts" refers to the combination of build alternatives that would produce the least relocations.

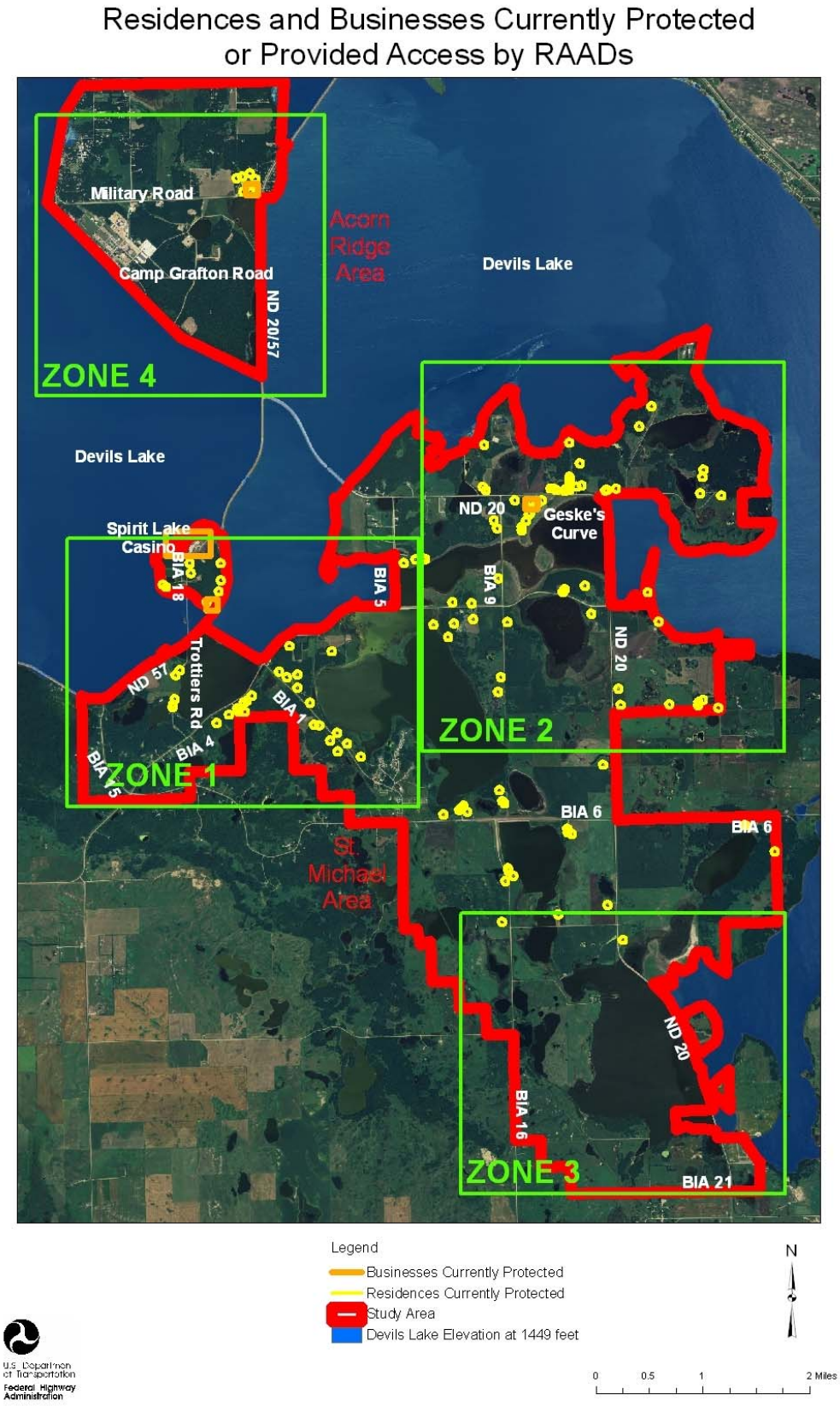


Figure 3-10. Residences and Businesses Currently Protected or Provided Access by RAADs

number of relocations are those required due to immediate inundation resulting from the equalization of RAADs at 1,449 feet lake elevation and those required for ROW acquisition. These residences and businesses were identified using aerial photography (**Appendices E and F)** and then verified with a field review. Note that these numbers are only estimates and may be adjusted slightly during the final design.

(a) No Action Alternative

At a lake elevation of 1,449 feet, if the RAADs were to fail, approximately four businesses and 131 residences would be displaced within the project area due to either inundation or lost access. At a lake elevation of 1,460 feet, the RAADs and the perimeter dams would be overtopped. Access that is currently provided by RAADs would be discontinued rendering most residences and businesses located at elevations higher than 1,460-foot elevations in Zones 2 and 4 inaccessible. Lands on the perimeter of the St. Michael area would be inundated as the Lake rises and Acorn Ridge would be inundated from the west. As a result, an estimated total of 258 residences and four businesses would be inundated or lose access.

(b) Build Alternatives

Direct and Indirect Effects

Any combination of the build alternatives would require relocation of residences. There are two reasons for the need to relocate residences and businesses. First, ROW acquisition needed for the proposed project may require residences to be relocated. None of the build alternatives would require the relocation of businesses due to ROW acquisition. Between six and nine residences would have to be relocated for ROW acquisition depending on the combination of build alternatives from each zone **(Table 3-6)**

Second, the immediate inundation resulting from equalizing some of the RAADs, or the loss of access some residences might experience as a result of equalizing some RAADs, would force residences and up to one business to relocate. Alternative 1-A would require the relocation of four homes due to the equalization of BIA Road 1 and ND 57 (**Figure 3-11)**. Alternative 3-A would require the relocation of one home due to the equalization of ND 20 **(Figure 3-12)**. Alternative 4-A would require the relocation of seven homes and one business due to the equalization of ND 20 **(Figure 3-13). Appendices E and F** include detailed maps of potential relocations due to inundation and ROW acquisition.

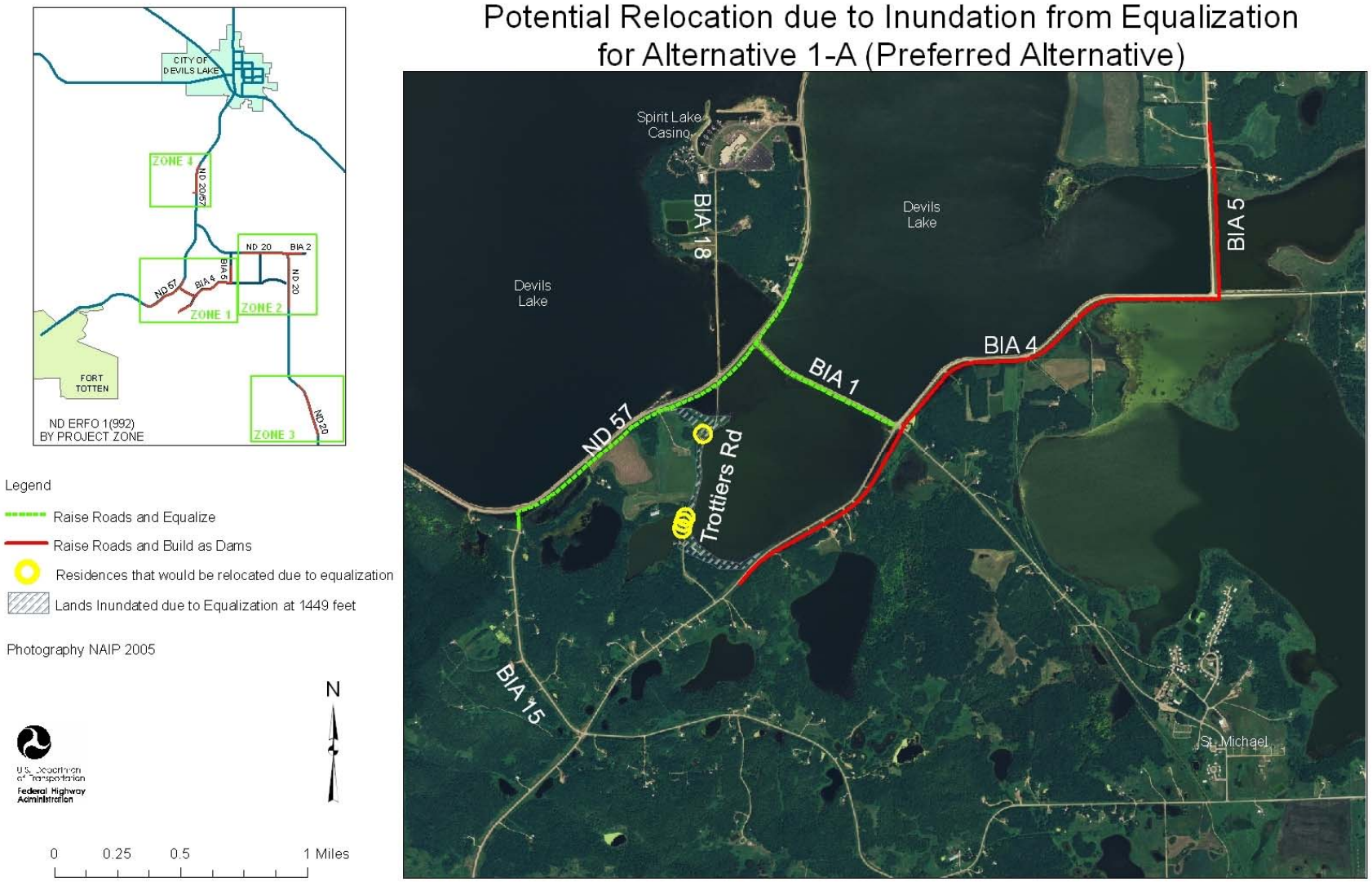


Figure 3-11. Potential Relocation due to Inundation from Equalization for Alternative 1-A (Preferred Alternative)

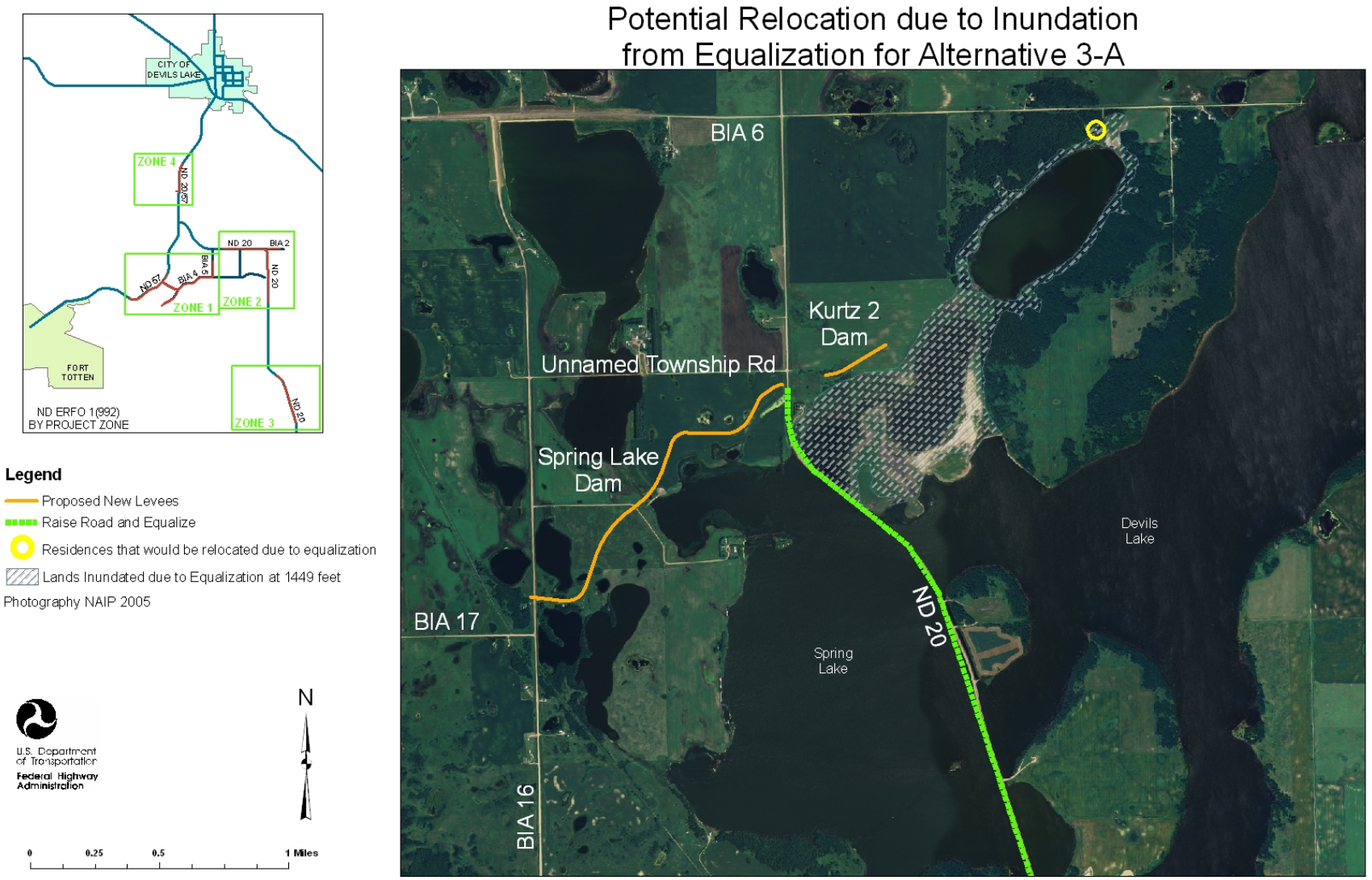


Figure 3-12. Potential Relocation due to Inundation from Equalization for Alternative 3-A

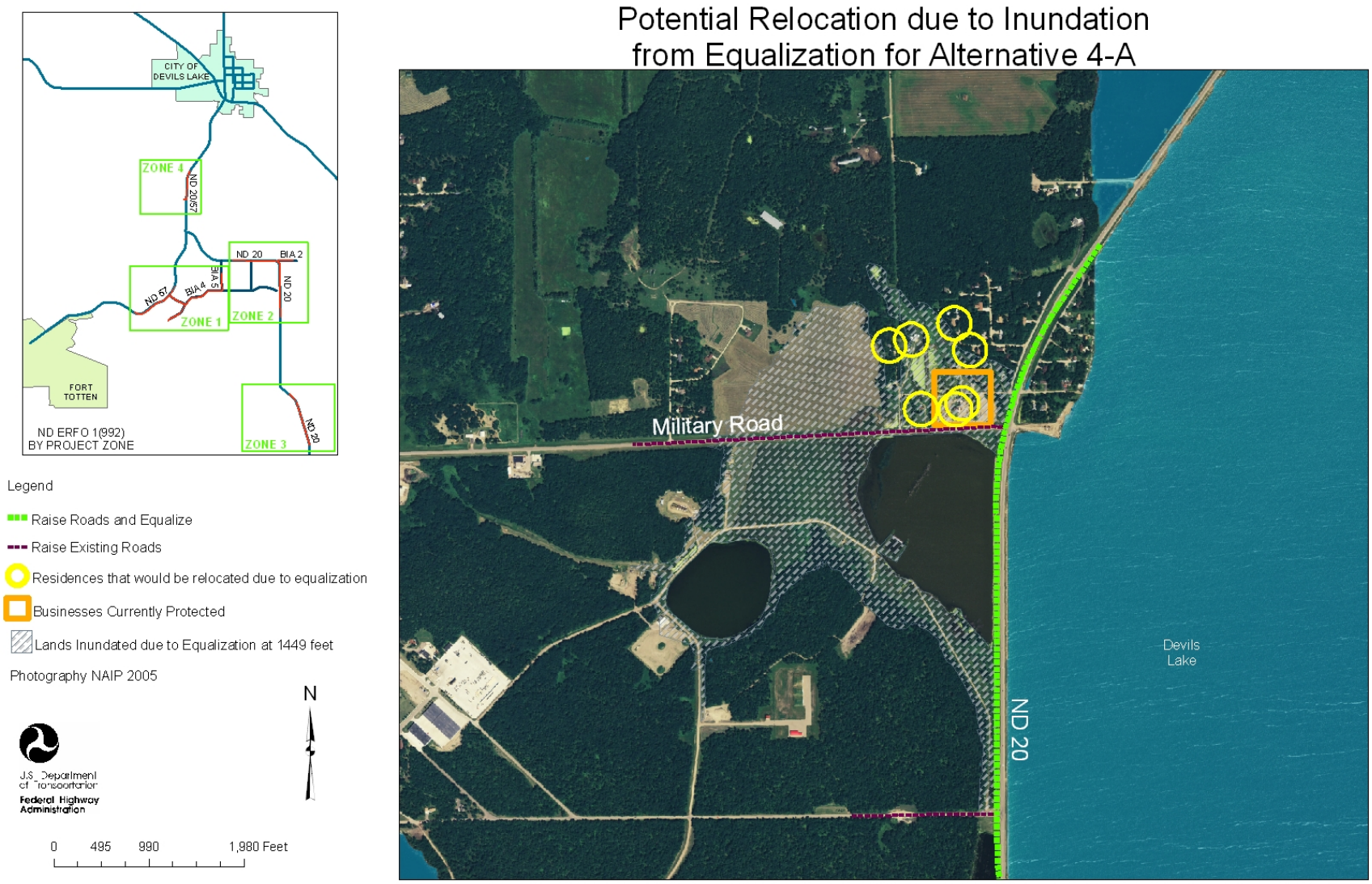


Figure 3-13. Potential Relocation due to Inundation from Equalization for Alternative 4-A

Combined, the relocations required for both ROW acquisition and inundation or loss of access total between ten and 17 depending on the combination of build alternatives. While relocation is difficult for the residences and businesses directly affected, the number of relocations required by the build alternatives is comparatively minor when considering that the No Action Alternative could inundate or cause a loss of access for up to 258 residences and four businesses at an elevation of 1,460 feet.

In equalization areas, there is also the potential for some changes in groundwater levels as a result of the proposed inundation. This could result in impacts to septic systems, wells, and basements. Given the unpredictability of these impacts, they are not enumerated here in the EA. However, if impacts are found to be a result of this project, affected homes would be eligible for mitigation.

Also, all of the build alternatives afford the added benefit of protecting homes in the Commonly Protected Area (**Figure 3-2)** at a lake elevation of 1,460 feet that would otherwise be inundated under the No Action Alternative. In addition, depending on their alignment, some of the individual alternatives would protect even more residences. This is particularly evident in Zone 2 where the use of perimeter dams like the Jetty Levee in Alternatives 2-A, 2-B, 2-D, and 2-E or the new perimeter dams in Alternatives 2-D and 2-E protect both the regional transportation system and additional lands and residences **(Table 3-7)**. At a lake elevation of 1,460 feet, the least amount of added protection provided by any combination of the build alternatives is approximately 84 residences and one business. The greatest amount of added protection would be for approximately 136 residences and two businesses. Because of this added protection, the required relocations for the build alternatives are between 32 and 52 percent less than what would be required for the No Action Alternative at a lake elevation of 1,460 feet.**Temporary Effects**
Construction activities related to the proposed project would not cause any residential or business relocations.

Mitigation
All necessary relocations identified in **Table 3-6** would occur prior to construction of the portion of the proposed project within the specific zone. All residences and businesses to be relocated due to ROW acquisition would be compensated under the Uniform Act and applicable state laws. Residences relocated due to immediate inundation would be provided the option of being compensated and relocated in accordance with the Uniform Act prior to the area being inundated. If impacts due to changes in groundwater are

found to be a direct effect of the project, compensation would occur according to the Uniform Act.

Table 3-7. Project Added Benefit of Residence and Business Protection (number)

Alternative	Residences Protected	Businesses Protected
Commonly Protected Area	84	1
Zone 1		
1-A	**0**	**0**
Zone 2		
2-A	**23**	**0**
2-B	**23**	**0**
2-C	**0**	**0**
2-D	**36**	**0**
2-E	**26**	**0**
Zone 3		
3-A	**0**	**0**
3-B	**1**	**0**
Zone 4		
4-A	**0**	**0**
4-B[1]	**15**	**1**
Most Added Protection[2]	136	2
Least Added Protection[3]	84	1

*Gray-shaded columns represent the preferred alternatives in each Zone

1 Assuming that perimeter dams are constructed to prevent inundation from the western side of Acorn Ridge.

2 "Most Added Protection" refers to the combination of build alternatives that would provide the greatest amount of added protection.

3 "Least Added Protection" refers to the combination of build alternatives that would provide the smallest amount of added protection.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet to the ultimate elevation of 1,460 feet, Devils Lake could inundate up to an additional 11 residences where the RAADs would be equalized in Alternatives 1-A, 3-A, and 4-A. Assuming these residences have flood insurance, they may be eligible to file claims with FEMA for any residential or business damages that would result from flooding.

d) Land Use and Ownership

Impacts to land use and ownership are discussed in general terms in this section. For more detailed discussions regarding impacts to specific land uses or land ownerships, please see the sections on "Agricultural Lands," "Prime and Important Farmlands," "Relocations," and "Indian Trust Assets."

(1) Affected Environment

The project area, as shown in **Figure 3-2**, comprises approximately 13,966 total acres of land (**Table 3-8**). Land use maps for the project area do not exist, so land uses were estimated using aerial photography. Land uses throughout the region are varied and include pastureland, croplands, rural areas with scattered development, and minor suburban residential areas with some commercial development. The town of St. Michael is the only urban area in the project area. Land ownership in the project area consists of privately owned land, also known as land held in fee, state land, federal land, tribal trust land, and allotted trust land **(Figure 3-14).** See the "Indian Trust Assets" section for a description of trust lands.

Table 3-8. Project Area Land Uses/Ownership (acres)

Type of Land or Land Ownership	Project Area	St. Michael Area	Acorn Ridge Area	*Commonly Protected Area*[1]
Private/fee land	6,369	4924	1,445	*2,146*
Allotted trust land	5,051	5,051	0	*2,109*
Tribal trust land	1,234	1234	0	*936*
State land	1,209	45	1164	*25*
Federal land	103	103	0	*103*
Total Lands	**13,966**	**11,357**	**2,609**	***5,319***
Estimated agricultural land[2]	*5,719*	5,399	*320*	*2,720*

1 "Commonly protected area" consists of the acreage in the "Commonly Protected Area" identified on Figure 3-2.
2 Agricultural lands are included in the other categories of lands and so these numbers are not included in the total.

Land uses within the Acorn Ridge area (Zone 4) are evenly divided between military operational uses to the south and residential and agricultural uses to the north. The military operational uses occur on state lands. The St. Michael area, which contains Zones 1, 2, and 3, is dominated by agricultural land uses. There are no on-going or planned developments in the Acorn Ridge area, or in the St. Michael area in Benson County. Several development projects are being considered by the SLN in the project area and include a half-mile pedestrian and bicycle path within the town of St. Michael, and a day care facility within the Spirit Lake Casino and Resort complex.

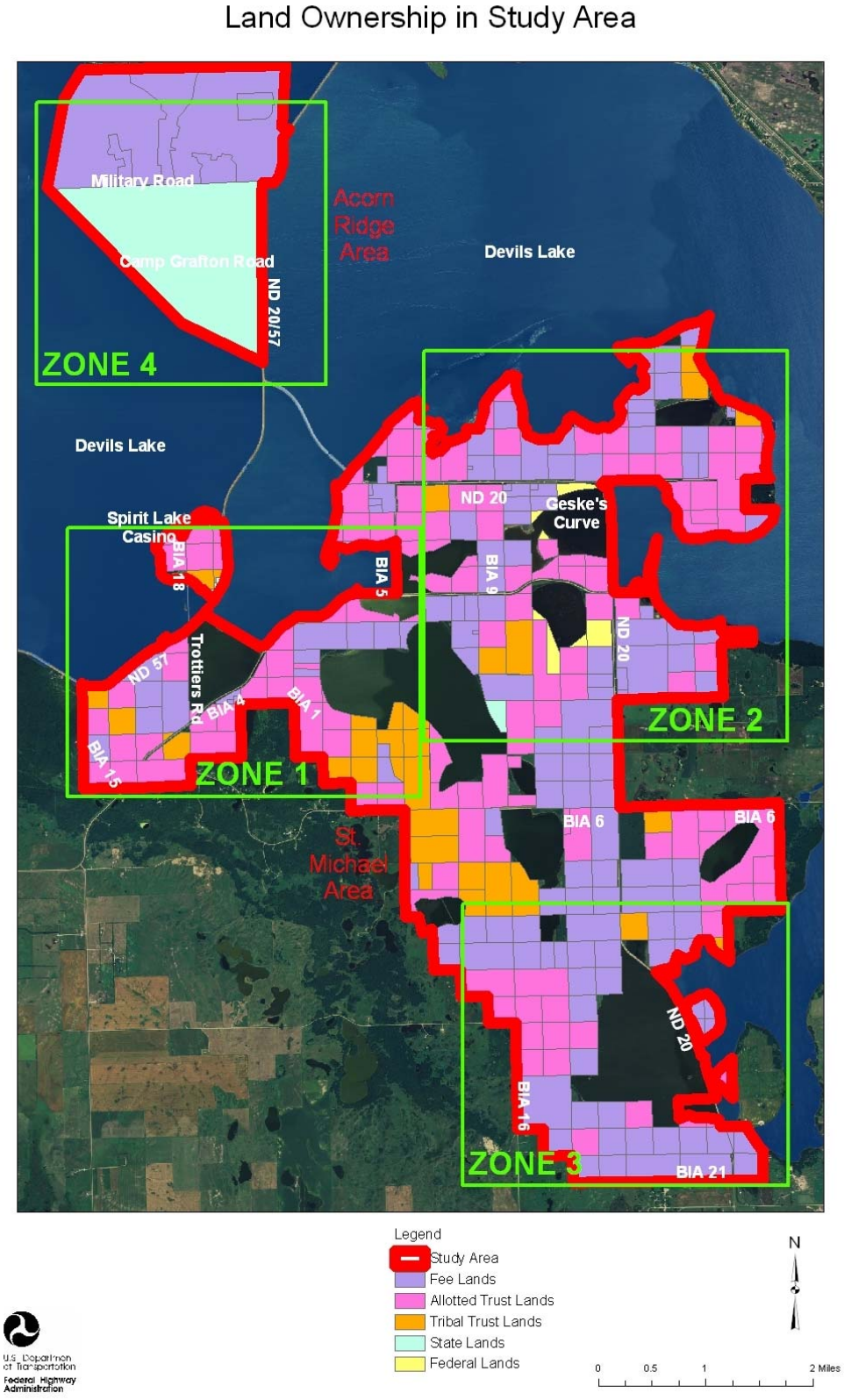


Figure 3-14. Land Ownership in Study Area

(2) Environmental Consequences

Lands inundated under the No Action Alternative or from equalization of RAADs under the build alternatives are presented in **Table 3-9.**

(a) No Action Alternative

At the project area level, if the RAADs were to fail under the No Action Alternative at a lake elevation of 1,449 feet, approximately 2,067 acres of land, or 15 percent of the project area, would be inundated. This inundation of land and loss of access would reduce the amount of agricultural and rural residential uses of land in the project area. Additionally, access to the Spirit Lake Casino and Resort, and to three other small businesses (The Mission Bay Market, RM Collision Repair Center, and Swanson's Sand and Gravel) could be cut off, thereby reducing the commercial land uses within the project area.

Under the No Action Alternative at a lake elevation of 1,460 feet, a total of 5,025 acres or 36 percent of all land within the project area would be inundated. The effects at 1,460 feet would be similar to those described above under the No Action Alternative scenario at 1,449 feet, only more severe, particularly since many residences and agricultural land would be rendered inaccessible. In effect, nearly half of the project area would either be covered by water, or would be vacant due to lack of access.

(b) Build Alternatives

Direct and Indirect Effects

The proposed project is not designed to increase traffic capacity or to provide new roads or points of access. As a result, no new land use developments are anticipated.

At a lake elevation of 1,449 feet, the approximate amount of land that would be immediately inundated as a result of the build alternatives that equalize RAADs is as follows (**Table 3-9)**:

- Alternative 1-A – 24 acres
- Alternative 3-A – 279 acres
- Alternative 4-A – 151 acres

The total amount of land that would likely be inundated with any combination of build alternatives ranges from approximately 24 to 454 acres. This range in acreage constitutes between approximately less than 0.2 percent and three percent of the project area.

Table 3-9. Impacts to Land Use and Ownership Due to Inundation (acres)

Alternative	State Land (1,209 total acres)	Private (Fee) Land (6,369 total acres)	Allotted Trust Land (5,051 total acres)	Tribal Trust Land (1,234 total acres)	Federal Land (103 total acres)	*Agricultural Land*[1] (5,719 total acres)	Total Lands Inundated[2] (13,966 total acres)
No Action at 1,449 feet	100	873	851	156	87	*785*	2,067
No Action at 1,460 feet	283	2,357	1,903	395	87	*1,857*	5,025
Zone 1							
1-A	**0**	**13**	**11**	**0**	**0**	***9***	24
Zone 2							
2-A	**NA**	**NA**	**NA**	**NA**	**NA**	***NA***	NA
2-B	**NA**	**NA**	**NA**	**NA**	**NA**	***NA***	NA
2-C	**NA**	**NA**	**NA**	**NA**	**NA**	***NA***	NA
2-D[3]	**0**	**0**	**0**	**0**	**0**	***0***	0
2-E[3]	**0**	**0**	**0**	**0**	**0**	***0***	0
Zone 3							
3-A	**0**	**204**	**51**	**24**	**0**	***32***	279
3-B	**0**	**0**	**0**	**0**	**0**	***0***	0
Zone 4							
4-A	**85**	**66**	**0**	**0**	**0**	***41***	151
4-B	**0**	**0**	**0**	**0**	**0**	***0***	0
Most Impact[4]	85	283	62	24	0	*82*	454
Least Impact[5]	0	13	11	0	0	*9*	24

*Gray-shaded columns represent the preferred alternatives in each Zone

1 Agricultural lands are included in the other categories of lands and so these numbers are not included in the "Total Lands Inundated."

2 For build alternatives, "Total Lands Inundated" refers to those lands below 1,449 feet that would be immediately inundated due to equalization of RAADs.

3 Equalization is proposed in this alternative but it would not cause any further inundation of the land currently protected.

4 "Most Impact" refers to the combination of build alternatives that would cause the most inundated acres.

5 "Least Impact" refers to the combination of build alternatives that would cause the least amount of inundated acres.

Approximate impacts to lands uses and ownership due to ROW acquisition for the proposed project are presented in **Table 3-10.** The amount of land needed for ROW acquisition, depending on the combination of alternatives selected, ranges from 226 to 344 acres. This range in acreage constitutes between approximately two and three percent of the project area.

Table 3-10. Impacts to Land Use/Ownership due to ROW Acquisition (acres)

Alternative	State Land (1,209 total acres)	Private (Fee) Land (6,369 total acres)	Allotted Trust Land (5,051 total acres)	Tribal Trust Land (1,234 total acres)	Federal Land (103 total acres)	*Agricultural Land*[1] (5,719 total acres)	Total Lands Acquired for ROW
No Action at 1,449 feet	**0**	**0**	**0**	**0**	**0**	***0***	NA
No Action at 1,460 feet	**0**	**0**	**0**	**0**	**0**	***0***	NA
Zone 1							
1-A	**0**	**15**	**32**	**2**	**0**	***4***	49
Zone 2							
2-A	**0**	**46**	**54**	**0**	**5**	***11***	105
2-B	**0**	**50**	**46**	**0**	**5**	***13***	101
2-C	**0**	**34**	**45**	**4**	**10**	***17***	93
2-D	**0**	**82**	**88**	**8**	**5**	***29***	186
2-E	**0**	**50**	**71**	**0**	**5**	***9***	126
Zone 3							
3-A	**0**	**39**	**9**	**12**	**0**	***32***	60
3-B	**0**	**52**	**12**	**13**	**0**	***44***	77
Zone 4							
4-A	**24**	**11**	**0**	**0**	**0**	***3***	35
4-B	**20**	**5**	**0**	**0**	**0**	***0***	25
Most Impact[2]	24	160	132	23	10	*80*	344
Least Impact[3]	20	93	86	14	5	*45*	226

*Gray-shaded columns represent the preferred alternatives in each Zone

1 Agricultural lands are included in the other categories of lands and so these numbers are not included in the "Total Lands Inundated."

2 "Most Impact" refers to the combination of build alternatives that would require the most amount of acres for ROW.

3 "Least Impact" refers to the combination of build alternatives that would require the least amount of acres for ROW

The combination of greatest amounts of estimated impacts associated with inundation (454 acres), and ROW acquisition (344 acres), equals 798 acres, or approximately six percent of the total project area. This impact is substantially less than the impacts to land use and ownership under the No Action Alternative at either lake elevation, which would impact between 15 and 36 percent of the project area at a lake elevation of 1,449 feet and 1,460 feet respectively. Additionally, a combination of any of the build alternatives under consideration would provide the added benefit of protecting between 2,175 to 3,764 acres of land from further inundation (**Table 3-11**). This added protection comprises approximately 15 to 27 percent of the project area.

Table 3-11. Project Added Benefit of Land Protection (acres)

Alternative	State Land (1,209 total acres)	Private (Fee) Land (6,369 total acres)	Allotted Trust Land (5,051 total acres)	Tribal Trust Land (1,234 total acres)	Federal Land (103 total acres)	*Agricultural Land*[1] (5,719 total acres)	Total Lands Protected[2] (13,966 total acres)
Commonly Protected Area	22	886	920	262	85	*1,090*	*2,175*
Zone 1							
1-A	**0**	**0**	**0**	**0**	**0**	***0***	*0*
Zone 2							
2-A	**0**	**203**	**67**	**0**	**0**	***62***	*270*
2-B	**0**	**203**	**53**	**0**	**0**	***62***	*256*
2-C	**0**	**0**	**0**	**0**	**0**	***0***	*0*
2-D	**0**	**370**	**418**	**27**	**0**	***317***	*815*
2-E	**0**	**208**	**121**	**0**	**0**	***70***	*329*
Zone 3							
3-A	**0**	**0**	**0**	**0**	**0**	***0***	*0*
3-B	**0**	**202**	**108**	**31**	**0**	***64***	*341*
Zone 4							
4-A	**0**	**0**	**0**	**0**	**0**	***0***	*0*
4-B	**286**	**147**	**0**	**0**	**0**	***102***	*433*
Most Added Protection[3]	308	1,605	1,446	320	85	*1,573*	*3,764*
Least Added Protection[4]	22	886	920	262	85	*1,090*	*2,175*

*Gray-shaded columns represent the preferred alternatives in each Zone

1 Agricultural lands are included in the other categories of lands and so these numbers are not included in the "Total Lands Inundated."

2 For build alternatives, "Total Lands Protected" refers to those lands below 1,449 feet that would be provided protection due to equalization of RAADs.

3 "Most Added Protection" refers to the combination of build alternatives that would provide the added benefit of protection for the most acreage.

4 "Least Added Protection" refers to the combination of build alternatives that would provide the added benefit of protection for the least amount of acres.

Temporary Effects

Construction of any of the build alternatives would cause traffic delays and detours, which would temporarily affect access to and from lands within the project area and region. This impact is considered to be minor.

Mitigation

The conversion of land to ROW uses would be compensated for based on fair market value of the land in accordance with the

Uniform Act and applicable state laws. Owners of land immediately inundated due to equalization would be given the option of being compensated for in accordance with the Uniform Act.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet to the ultimate elevation of 1,460 feet, the rising waters of Devils Lake could inundate as much as an additional 481 acres in areas where the RAADs were equalized by Alternatives 1-A, 3-A, and 4-A.

e) Agricultural Land

Agricultural lands, as discussed in this section, are different from prime, unique, and important farmland addressed in the next section. "Agricultural Lands" refers to any land that appears to be used for production of agricultural products. Prime, unique, and important farmland is specifically defined in the Farmland Protection Policy Act (FPPA) of 1981 according to certain soil characteristics. Some agricultural lands may not possess the soil characteristics to be classified as prime, unique, or important farmlands, and some prime, unique, and important farmland soils are not being used for agriculture but rather for roads or residential development. Because land use maps do not exist for the project area, agricultural land was estimated by using aerial maps and highlighting areas that were non-wooded and appeared to be used for agricultural purposes**. Figure 3-15** shows lands that are considered to be agricultural.

(1) Affected Environment

Agriculture plays an important social and economic role in the Devils Lake region. Ramsey and Benson counties' combined agricultural lands totals nearly 1.4 million acres or 83 percent of both counties' land area. The predominant crops harvested in both counties are wheat, soybeans, and corn. An estimated 5,719 acres, or 41 percent, of the project area is comprised of agricultural land (**Table 3-8)**.

(2) Environmental Consequences

Impacts to agricultural lands due to ROW acquisition and inundation are presented in **Table 3-12**. Under the build alternatives, the amount of lands inundated are those immediately inundated due to equalization of RAADs at a lake elevation of 1,449 feet.

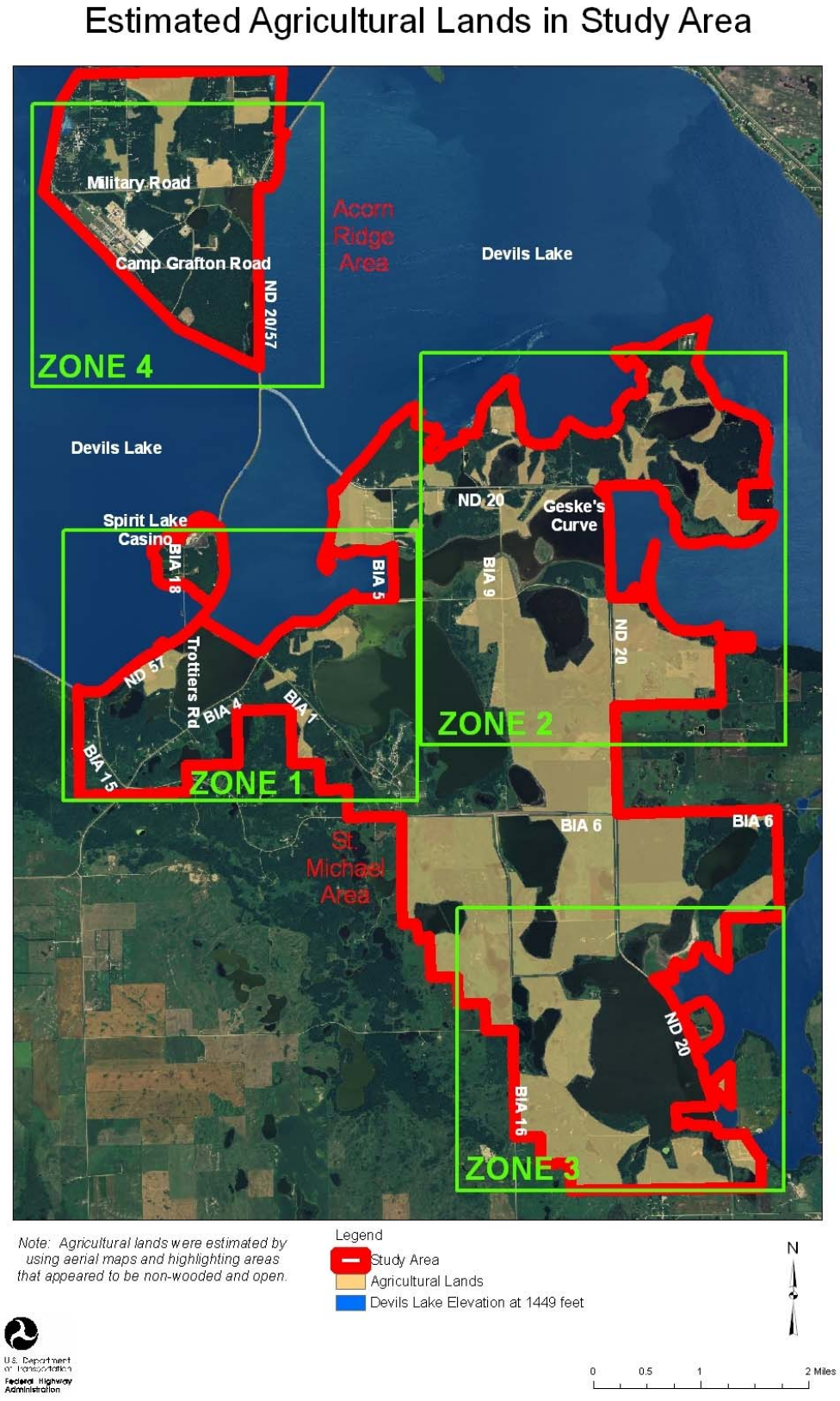


Figure 3-15. Estimated Agricultural Lands in Study Area

Table 3-12. Impacts to Agricultural Lands (acres)

Alternative	ROW Acquisition	Total Lands Inundated[1]
No Action at 1,449 feet	NA	785
No Action at 1,460 feet	NA	1,857
Zone 1		
1-A	**4**	**9**
Zone 2		
2-A	**11**	**NA**
2-B	**13**	**NA**
2-C	**17**	**NA**
2-D[2]	**29**	**0**
2-E[2]	**9**	**0**
Zone 3		
3-A	**32**	**32**
3-B	**44**	**0**
Zone 4		
4-A	**3**	**41**
4-B	**0**	**0**
Most Impact[3]	80	82
Least Impact[4]	45	9

*Gray-shaded columns represent the preferred alternatives in each Zone

1 For build alternatives, "Total Lands Inundated" refers to those lands below 1,449 feet that would be immediately inundated due to equalization of RAADs.

2 Equalization is proposed in this alternative but it would not cause any further inundation of the land currently protected.

3 "Most Impact" refers to the combination of build alternatives that would impact the most amount of agricultural land.

4 "Least Impact" refers to the combination of build alternatives that would impact the least amount of agricultural land.

(a) No Action Alternative

Under the No Action Alternative, no additional ROW would be required and no agricultural land would be permanently converted to transportation ROW. If the No Action Alternative is selected and all RAADs were to fail at a lake elevation of 1,449 feet, approximately 785 acres or 14 percent of agricultural land would be inundated (**Figure 3-16** and **Table 3-12**). At a lake elevation of 1,460 feet, overtopping of all of the RAADs and the perimeter

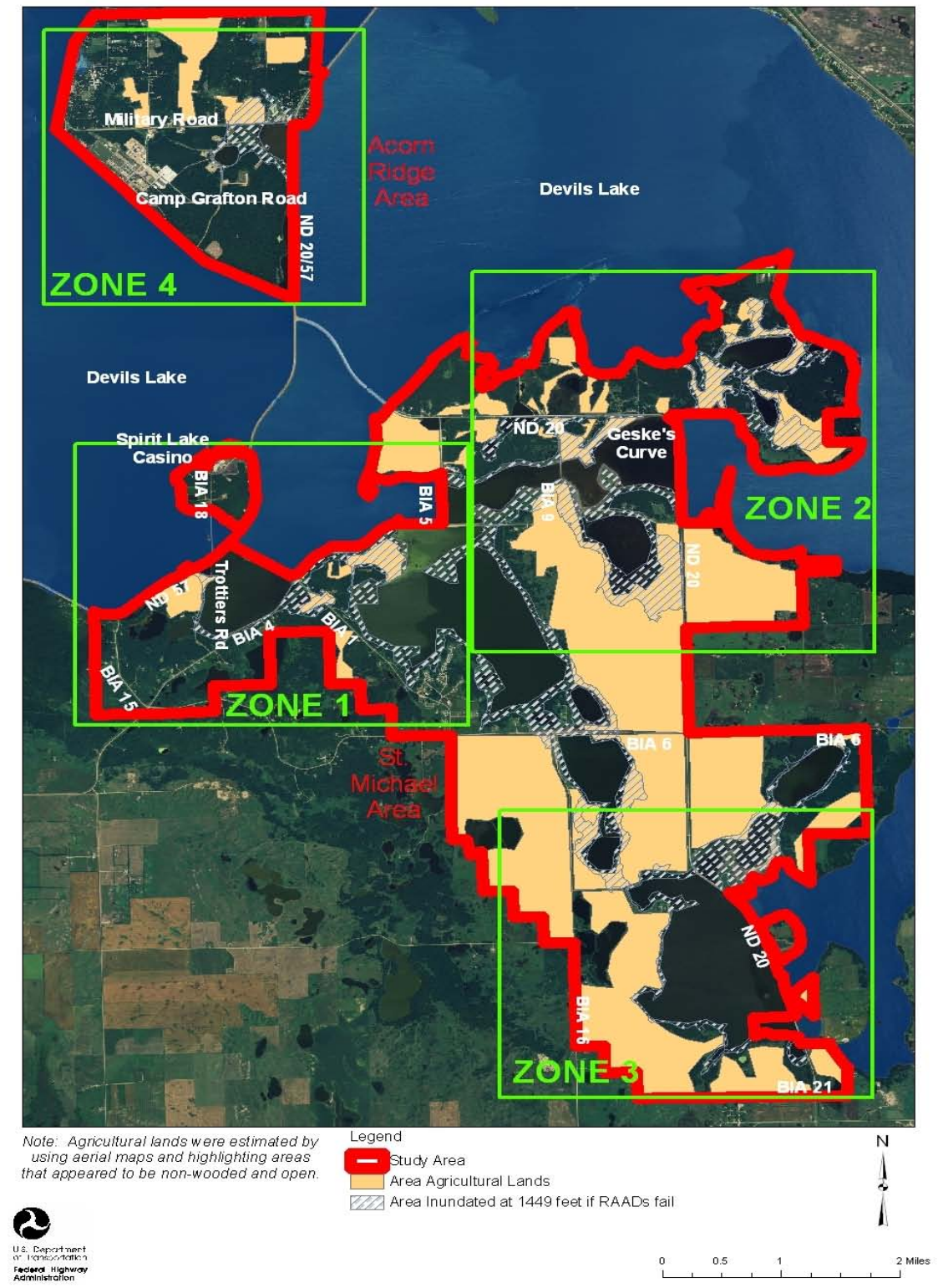


Figure 3-16. No Action Alternative at a Lake Elevation of 1,449 Feet

dams would inundate approximately 1,857 acres, or 33 percent, of the agricultural land within the project area (**Figure 3-17**).

(b) Build Alternatives

Direct and Indirect Effects

Inundation impacts are identified for Alternatives 1-A, 3-A, and 4-A, because these are the only build alternatives that propose equalization of RAADs. Approximately 9, 32, and 41 acres of agricultural lands would be inundated respectively by these three alternatives. Depending on the combination of build alternatives selected, the proposed project would immediately inundate between 9 and 82 acres of agricultural land due to the equalization of RAADs. Depending on the combination of build alternatives selected, ROW impacts to agricultural land would range between 45 and 80 acres **(Table 3-12)**.

The combined impact the proposed project would have on agricultural lands from the inundation and ROW acquisition ranges from approximately 54 to 162 acres, or, between one and three percent of the estimated agricultural lands in the project area (**Table 3-12)**. This is less than the 14 to 33 percent of the agricultural lands that would be inundated under the No Action Alternative at lake elevations of 1,449 feet and 1,460 feet respectively.

The impact under any of the build alternatives is offset by the added benefit that the build alternatives would provide in the form of protecting lands from further inundation. Any combination of the build alternatives would protect approximately 1,280 acres of the agricultural lands within Commonly Protected Area. In addition, depending on alignment, some of the individual alternatives would protect even more land. This is particularly evident in Zone 2 where the use of perimeter dams in Alternatives 2-D and 2-E protects both the regional transportation system and additional lands. A combination of any of the build alternatives would protect between approximately 1,090 and 1,573acres of agricultural land at a lake elevation of 1,460 feet (**Table 3-13).** This constitutes between 19 and 28 percent of the estimated agricultural lands in the project area.

Because the proposed project would not increase capacity or affect overall land use patterns, no indirect impacts to agricultural land are anticipated.

Temporary Effects

No temporary effects to agricultural lands are anticipated.

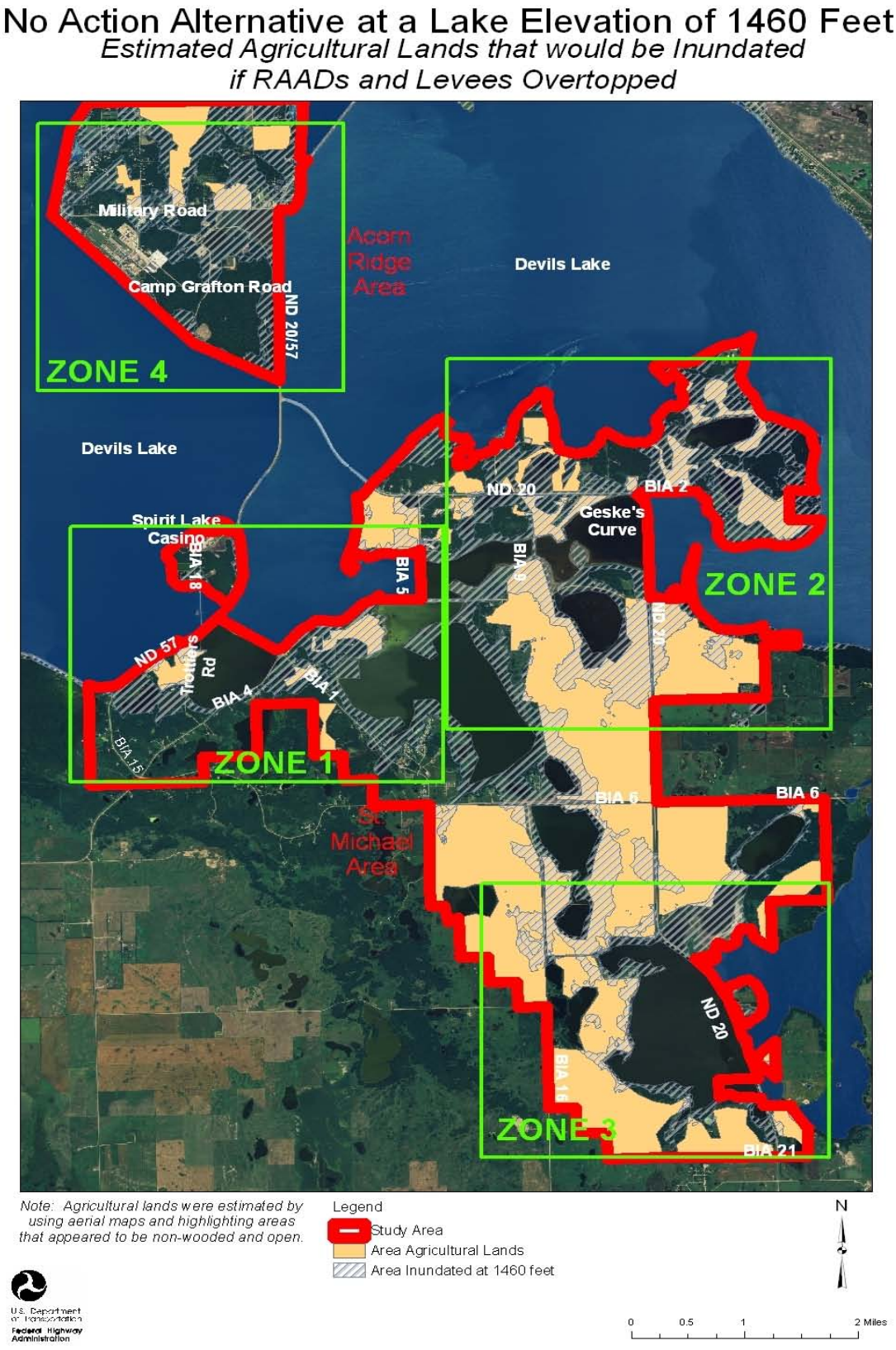


Figure 3-17. No Action Alternative at a Lake Elevation of 1,460 Feet

Table 3-13. Project Added Benefit of Agricultural Land Protection (acres)

Alternative	Agricultural Land Protected up to 1,460 Feet Elevation
Commonly Protected Area	1,090
Zone 1	
1-A	**0**
Zone 2	
2-A	**62**
2-B	**62**
2-C	**0**
2-D	**317**
2-E	**70**
Zone 3	
3-A	**0**
3-B	**64**
Zone 4	
4-A	**0**
4-B	**102**
Most Added Protection[1]	1,573
Least Added Protection[2]	1,090

*Gray-shaded columns represent the preferred alternatives in each Zone

1 "Most Added Protection" refers to the combination of build alternatives that would provide the added benefit of protection to the most agricultural acreage.

2 "Least Added Protection" refers to the combination of build alternatives that would provide the added benefit of protection to the least agricultural acreage.

Mitigation

The conversion of agricultural land to ROW would be compensated for based on fair market value of the land in accordance with the Uniform Act and any applicable state laws. Agricultural lands immediately inundated would be compensated for under the Uniform Act.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet to the ultimate elevation of 1,460 feet, the rising waters of Devils Lake could inundate as much as an additional 64 acres of agricultural land in areas where the RAADs were equalized by Alternatives 1-A, 3-A, and 4-A.

f) Prime, Unique, and Important Farmlands

(1) Affected Environment

Under the FPPA, prime farmland possesses the best combination of physical and chemical properties for the production of food, feed, forage, fiber, and oilseed crops and also is available for these uses. Unique farmland is defined as farmland used for production of high value food, feed, and fiber crops. Important farmland, also known as farmland of statewide importance, does not possess the characteristics to be classified as "prime" or "unique," though such lands are considered still important to agriculture. The FPPA requires federal agencies to consider alternative actions that could lessen effects to these farmland soils.

The NRCS does not consider inundation of prime, unique, and important farmland a permanent effect so only lands affected by ROW acquisition for the proposed project have been identified and considered in the effects analysis. The NRCS has identified prime farmland and important farmland in the project area and in additional ROW acquisition areas (**Figure 3-18).**

(2) Environmental Consequences

(a) No Action

Under the No Action Alternative, there would be no permanent conversion of prime and other farmland for ROW purposes at either the lake elevation of 1,449 feet or 1,460 feet.

(b) Build Alternatives

After the FONSI is completed, a Farmland Conversion Impact Rating, Form AD-1006, would be processed to determine the level of impacts to prime, unique, and important farmland. Section 658.4(c)(2) of the Farmland Protection Policy Act states that sites receiving a total score of less than 160 on Form AD-1006 need not be given further consideration. Based on a review of other roadway projects that have occurred within the region, it is not anticipated that any combination of the build alternatives would score more than 160. Identified below is the acreage of prime, unique, and important farmland that would be affected by ROW acquisition for each build alternative.

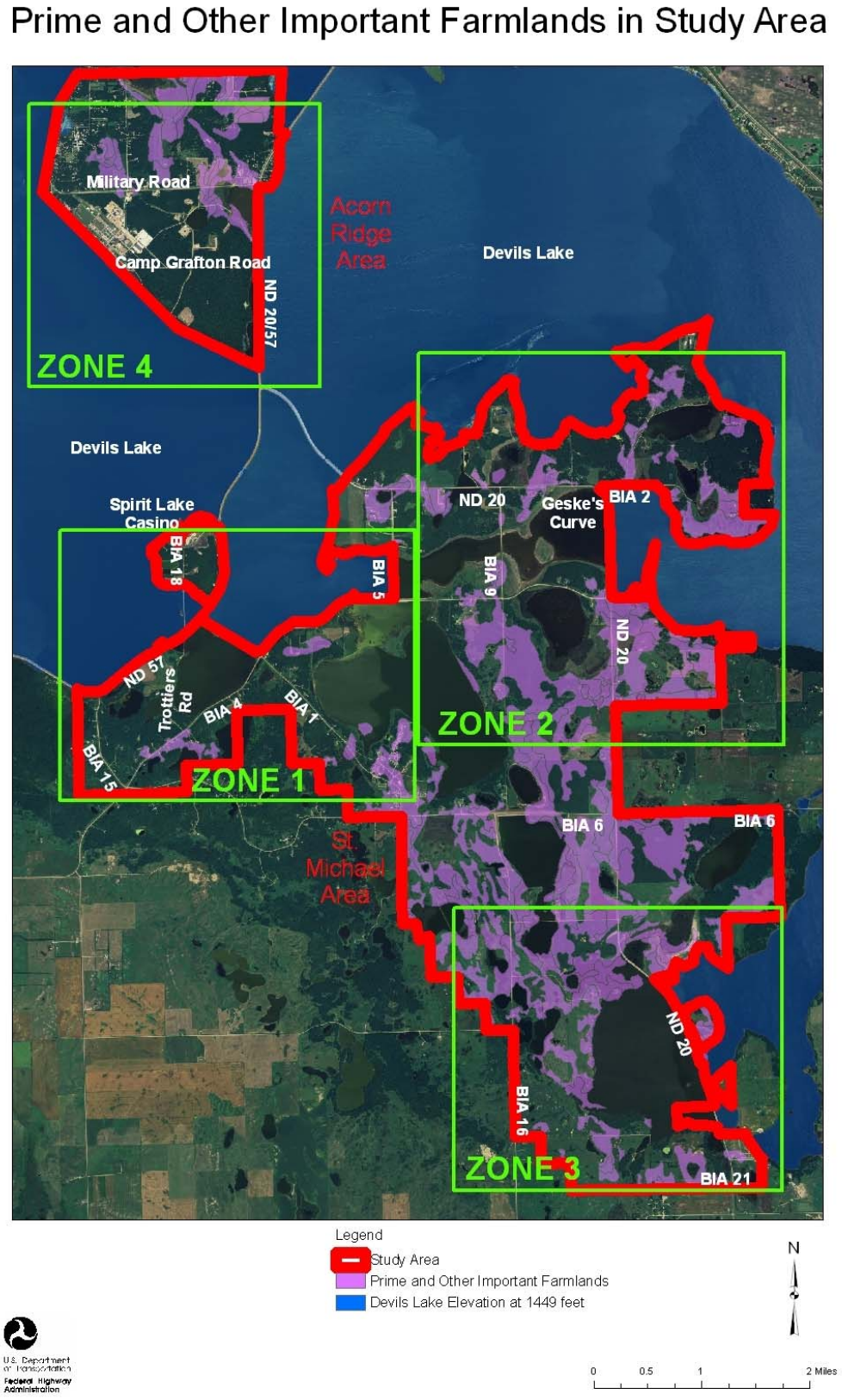


Figure 3-18. Prime and Other Important Farmlands in Study Area

Direct and Indirect Effects

Table 3-14 presents the amount of prime, unique, and important farmland that would be affected by each build alternative. Between 26 and 52 acres of prime, unique, and important farmland would be impacted by ROW acquisition.

Table 3-14. ROW Impacts to Prime, Unique, and Statewide Important Farmlands

Alternative	ROW Acquisition (acres)
No Action at 1,449 feet	NA
No Action at 1,460 feet	NA
Zone 1	
1-A	**1**
Zone 2	
2-A	**12**
2-B	**10**
2-C	**16**
2-D	**20**
2-E	**8**
Zone 3	
3-A	**13**
3-B	**19**
Zone 4	
4-A	**12**
4-B	**4**
Most Impact[1]	52
Least Impact[2]	26

*Gray-shaded columns represent the preferred alternatives in each Zone

1 "Most Impact" refers to the combination of build alternatives that would impact the most prime, unique, and important farmland acreage.

2 "Least Impact" refers to the combination of build alternatives that would impact the least prime, unique, and important farmland acreage.

No indirect effects to prime, unique, or important farmland are anticipated.

Temporary Effects

Temporary effects to prime, unique, and important farmlands are the same as those presented for "Agricultural Lands" presented in the previous section.

Mitigation

Should completion of Form AD-1006 produce a score of 160 or more, the FHWA would consult with the NRCS as needed to determine appropriate mitigation measures if any are needed. The conversion of prime, unique, and important farmlands to ROW would be compensated for based on fair market value of the land

and in accordance with the Uniform Act and applicable state laws. Owners of farmland whose lands would be immediately inundated would be provided the option of being compensated in accordance with the Uniform Act and any applicable state laws.

g) Indian Trust Assets

(1) Affected Environment

Under the authority of the American Indian Trust Fund Management Reform Act of 1994 (25 U.S.C. § 4001, et seq.), the U.S. Department of Interior (USDOI) established guidance for carrying out the Secretary of Interior's trust responsibility relative to Indian Trust Assets (ITA). Part 303, Chapter 2 of the USDOI's Department Manual defines an ITA as lands, natural resources, money, or other assets held by the federal government in trust or that are restricted against alienation for Indian tribes and individual Indians. The trust responsibilities as defined by the USDOI are, among others, to protect and preserve ITAs from loss, damage, unlawful alienation, waste, and depletion. Trust responsibilities are overseen primarily by the BIA. The ITAs for the SLN that were identified by treaty with the United States in 1867 are lands—agricultural lands in particular—held in trust for the tribe as a whole or for individual allottees. Individual allotted trust lands are parcels of land that the federal government, via the BIA, gave or "allotted" to individual Native Americans contained within the boundaries of the Spirit Lake Nation or public lands.

Forty-five percent of the project area comprises ITAs, with 1,234 acres being tribal trust land and 5,051 acres being allotted trust land (**Figure 3-14** and **Table 3-8**). Of these ITAs, an estimated 2,366 acres, or 38 percent, are used for agricultural purposes. ITAs are found in Zones 1, 2, and 3.

(2) Environmental Consequences

Estimated impacts to ITAs due to ROW acquisition and inundation are presented in **Table 3-15**. Under the build alternatives, the estimated acreage impacted due to inundation is that which immediately results from the equalization of RAADs.

(a) No Action Alternative

If the proposed project is not built and the RAADs were to fail at a lake elevation of 1,449 feet, approximately 154 acres or 13 percent of the tribal trust lands in the project area would be inundated. Approximately 851 acres, or 17 percent of the allotted trust lands, would be inundated (**Table 3-15).** If the No Action Alternative is selected and the Lake reaches the elevation of 1,460 feet, approximately 239 acres, or 19 percent of tribal trust lands, would

be inundated, and approximately 1,052 acres, or 21 percent of the individual allotted trust lands, would be inundated.

Table 3-15. Impacts to Indian Trust Assets (acres)[1]

Alternative	Tribal Trust Lands (1,234 acres in project area)		Allotted Trust Lands (5,051 acres in project area)	
	ROW Impacts	*Lands Inundated*[2]	*ROW Impacts*	*Lands Inundated*[2]
No Action at 1,449 ft	NA	156	NA	851
No Action at 1,460 ft	NA	395	NA	1,903
Zone 1				
1-A	**2**	**0**	**32**	**11**
Zone 2				
2-A	**0**	**NA**	**54**	**NA**
2-B	**0**	**NA**	**46**	**NA**
2-C	**4**	**NA**	**45**	**NA**
2-D[3]	**8**	**0**	**88**	**0**
2-E[3]	**0**	**0**	**71**	**0**
Zone 3				
3-A	**13**	**24**	**12**	**51**
3-B	**12**	**0**	**9**	**0**
Most Impact[4]	23	24	132	62
Least Impact[5]	14	0	86	11

*Gray-shaded columns represent the preferred alternatives in each Zone

1 Zone 4 does not have any ITA or Allotments.

2 For build alternatives, "Lands Inundated" refers to those lands below 1,449 feet that would be immediately inundated due to equalization of RAADs.

3 Equalization is proposed in this alternative but it would not cause any further inundation of the land currently protected.

4 "Most Impact" refers to the combination of build alternatives that would impact the most ITAs.

5 "Least Impact" refers to the combination of build alternatives that would impact the least ITAs.

(b) Build Alternatives

Direct and Indirect Effects

Presented in **Table 3-15** are the ROW and inundation impacts each build alternative would have on tribal and allotted trust lands identified in the project area. Inundation impacts are identified for Alternatives 1-A and 3-A because these alternatives propose to equalize RAADs. Depending on the combination of build alternatives selected, equalization of RAADs would cause zero to 24 acres of tribal trust lands to be inundated and ROW impacts to tribal trust lands would range from 14 to 23 acres. Combining the impacts from immediate inundation and ROW acquisition, between 14 and 47 acres of tribal trust lands would be impacted by any combination of the build alternatives. These amounts

constitute between one and four percent of the tribal trust lands in the project area. These amounts are less than the impacts that would occur under the No Action Alternative, which would inundate between 16 and 37 percent of the trust lands in the project area at lake elevations 1,449 feet and 1,460 feet respectively.

Between 11 to 62 acres of allotted trust lands would be immediately inundated due to equalization depending on the combination of alternatives selected, and ROW impacts would range from 86 to 132 acres. Combining the impacts from immediate inundation and ROW acquisition, between 97 to 194 acres of allotted trust lands would be impacted by the build alternatives. These amounts constitute between two and four percent of the allotted trust lands in the project area. These amounts also are less than the impacts that would occur under the No Action Alternative, which would inundate between 20 and 38 percent of the trust lands in the project area at lake elevations 1,449 feet and 1,460 feet respectively.

The impacts the build alternatives would have on ITAs is offset by the added benefit of protecting ITAs from inundation (**Table 3-16).** A combination of any of the build alternatives would protect approximately 262 acres of tribal trust lands and 920 acres of allotted trust lands in the Commonly Protected Area (**Figure 3-2)** at a lake elevation of 1,460 feet. In addition, depending on alignment, some of the individual alternatives would protect even more land. This is particularly evident in Zone 2 where the use of existing perimeter dams in Alternatives 2-D and 2-E protects both the regional transportation system and additional lands.

Depending on the combination of alternatives, the least amount of tribal trust land acreage experiencing the added benefit of protection from inundation is approximately 262 acres and the most is approximately 320 acres. For allotted trust lands the least amount of acreage experiencing the added benefit of protection from inundation is approximately 920 acres and the most is approximately 1,446 acres. Because the proposed project would not increase capacity or affect overall land use patterns, no indirect impacts to ITAs are anticipated.

Temporary Effects

Construction of the proposed project would cause temporary traffic delays and detours, which would affect access to and from trust and allotted lands. However, this impact is considered to be minor.

Table 3-16. Project Added Benefit of ITA Protection (acres)[1]

Alternative	Tribal Trust Lands Protected up to 1,460 Lake Elevation	Allotted Trust Lands Protected up to 1,460 Lake Elevation
Commonly Protected Area	262	920
Zone 1		
1-A	**0**	**0**
Zone 2		
2-A	**0**	**67**
2-B	**0**	**53**
2-C	**0**	**0**
2-D	**27**	**418**
2-E	**0**	**121**
Zone 3		
3-A	**0**	**0**
3-B	**31**	**108**
Most Added Protection[2]	320	1,446
Least Added Protection[3]	262	920

*Gray-shaded columns represent the preferred alternatives in each Zone

1 Zone 4 does not have any Tribal or Allotted Trust Lands.

2 "Most Added Protection" refers to the combination of build alternatives that would provide the greatest amount of added protection.

3 "Least Added Protection" refers to the combination of build alternatives that would provide the smallest amount of added protection.

Mitigation

ITAs converted to ROW would be compensated for based on fair market value of the land according to the Uniform Act and applicable state laws. For ITAs immediately inundated, owners or those who hold the trust, would be provided the option of being compensated in accordance with the Uniform Act prior to the ITA being inundated.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet to the ultimate elevation of 1,460 feet, the rising waters of Devils Lake could inundate as much as an additional 17 acres of tribal trust lands and 55 acres of allotted trust lands under Alternative 1-A, and eight acres of tribal trust lands and 39 acres of allotted trust lands would be inundated under Alternative 3-A.

h) Economic Resources

(1) Affected Environment

Within the region, farming and government are the basic sectors of the economy as measured by employment relative to the nation.[1] According to the 2000 Census, approximately 591 workers, or seven percent of all workers in the region commute between Ramsey and Benson counties.[2] ND 20 and ND 57, linking Ramsey County to the north with the SLN and Benson County to the south, are important for the economy of the region.

The project area is home to two large employers, the Spirit Lake Casino and Resort and Camp Grafton, which together employ well over 600 workers. The predominant points of access to these establishments are from ND 57 and ND 20. Since BIA Road 18 was flooded, there are no alternative points of access to the Spirit Lake Casino and Resort. Secondary roads that provide access to Camp Grafton are 79th Avenue and 45th Street, also known as Military Road.

Although a direct measure of how frequently residents in the region and project area use the RAADs is not available, these roads are clearly relied upon to access the major population and employment centers of the City of Devils Lake and Fort Totten. Project area residents are fully dependent on the road system to access jobs and services outside of the project area.

While there is no data on farm income or farm-based employment at the project area level, it is reasonable to assume that it contributes a large amount to the economy given that an estimated 41 percent of the project area lands are agricultural lands. For more information please see the "Agricultural Lands" section.

[1] Industries that export goods and services from a region, or, more broadly, that bring new money into a region, are referred to as basic industries. These industries, which make up sectors of the economy, are what drive the economy; they explain why people have settled in an area to make a living. Because nationwide collection of data does not support a practical study of industry output and trade flows to and from a region, an alternative and standard method is to use employment-by-industry data to determine basic industries for a region. The general practice is to compare employment for each sector of the region's economy with the national norm. If the ratio of employment for one sector is higher in the region than the ratio for the United States, that sector is considered to be basic. In the Devils Lake region, the farming and government sectors employ 11 percent and 28 percent of all workers respectively. In the United States, farming and government sectors employ two percent and 14 percent of all workers respectively.

[2] US 281 also provides a major transportation link between Benson and Ramsey counties. Census data do not distinguish between the number of Benson County and Ramsey County workers commuting via ND 20 and US 281.

(2) Environmental Consequences

(a) No Action Alternative

If the No Action Alternative were selected and the RAADs were to fail at a lake elevation of 1,449 feet, access between Ramsey County, and the SLN and Benson County would be lost via ND 20 and ND 57. This would have considerable adverse impacts on employment and income in the region and project area. Camp Grafton would become inaccessible via ND 20, and the eastern portion of Military Road would be inundated. The Spirit Lake Casino and Resort would become inaccessible. Also, at an elevation of 1,449 feet, should the RAADs fail, 785 acres of agricultural land would be inundated, removing this acreage from the production of agricultural products (**Table 3-12**).

If the Lake rises to 1,460 feet, under the No Action Alternative, perimeter dams that currently protect the project area's road system and RAADs would be overtopped. The effects described above would occur, but would be more severe, including a total of 1,857 acres of agricultural land that would be inundated. This inundation would result in more adverse impacts on employment and income in the region and project area.

(b) Build Alternatives

Direct and Indirect Effects

Alternatives resulting in equalizing a RAAD, Alternatives 1-A, 3-A, and 4-A, would result in the immediate inundation or conversion to ROW of between 54 to 146 acres of agricultural land (**Table 3-12)**, thereby removing the land from the production of agricultural products. As noted in the "Agricultural Land" section, this impact is offset by the added benefit that the build alternatives would protect between 1,090 and 1,573acres of agricultural land from inundation at a lake elevation of 1,460 feet (**Table 3-13**).

Safe access to Camp Grafton and the Spirit Lake Casino and Resort would be provided by all of the build alternatives. Employment and income generated by these two establishments would not be reduced by the proposed project.

To accommodate a lake elevation of 1,460 feet, the proposed project construction and mitigation costs would range from approximately $204 million to $254 million. Based on these cost estimates it is anticipated that between 85 and 141 construction-related jobs and 44 to 53 non-construction jobs would be generated respectively. Both the construction-related and the non-construction jobs are considered temporary.

Indirect and induced spending, or multiplier effects,[3] would occur as a result of the direct payments made for construction materials and labor. The proposed project is estimated to indirectly create between $61 and $76 million in non-labor related income (*FHWA 2007b*).

Temporary Effects

Road, RAADs, and perimeter dam construction would cause some delays and detours in the delivery of goods and services to market. It would also cause delays and detours for workers during their commutes. These impacts would be short-term and are minor.

Mitigation

Safe access within the project area and region would be provided, which facilitates economic activity, the effects would overall be beneficial and, therefore, no mitigation measures are required. The proposed project would stimulate economic activity within the region by adding new jobs and income throughout the construction period.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet to the ultimate elevation of 1,460 feet, the effects of the rising lake waters, in combination with the RAADs that would be equalized, would have an incremental impact to the economy by inundating an additional 64 acres of farmland.

i) Social Resources

This section addresses the resources and issues that are fundamental to the day-to-day lives of members of a community, including community facilities, schools, emergency services, and neighborhood cohesion.

(1) Affected Environment

There are a small number of community facilities in the project area (**Figure 3-19)**. Most community services including schools, health care centers, law enforcement, and fire stations are located outside of the project area in either Fort Totten or Devils Lake causing the residents to be fully dependent on the road system to access these services. The Devils Lake school district runs seven buses, and an estimated average of 280 children via ND 20 between the Acorn Ridge area and St. Michael area on any given school day. Mercy Hospital, located in the City of Devils Lake, is the only hospital in the region. The City of Devils Lake and the SLN both have ambulance service. Emergency medical services are also provided to the St. Michael area out of Fort Totten. Law enforcement services are provided to Acorn Ridge through

[3] A multiplier is a measure of how much additional – or indirect – spending on employment and income would occur within a region based on the direct spending of the proposed project. In the Devils Lake region, it is estimated that for every dollar spent on construction, an additional 50 percent is added to the economy. The calculations for direct and indirect employment and income generated as a result of the proposed project are included as an appendix to the social and economic technical report (*FHWA 2007b).*

Figure 3-19. Devils Lake Project Area
Business Parks, Emergency Services, and Community Facilities

county police based in the City of Devils Lake. The SLN provides its own police force, which is headquartered in Fort Totten.

A fire station serving the St. Michael area is located in Fort Totten. Acorn Ridge is served by the City of Devils Lake Rural Fire Station located on ND 20 south of the City of Devils Lake.

Based on criteria used to identify neighborhood cohesion *(FHWA 2007b)*, St. Michael is the only community in the project area that can be characterized as a cohesive community. St. Michael has a relatively high concentration of residences with a similar housing type. It is served by a post office, general store, recreation facility, and church, all within walking distance, which encourages relatively frequent interaction by the residents and provides for the establishment of social ties. Also, the residents of St. Michael are predominantly, if not exclusively, members of the SLN and therefore hold common cultural ties. Though there are several residential areas in the Acorn Ridge portion of the project area, because there are few community facilities and the houses are not densely clustered, these residential areas rank low in their measure of neighborhood cohesion.

(2) Environmental Consequences

(a) No Action Alternative

At a lake elevation of 1,449 feet, if the RAADs were to fail, the transportation system would be greatly disrupted as described in the "Transportation" section. Access to various community services, particularly schools, law enforcement, and health care, would be disrupted. This is particularly the case in and around the St. Michael area where residents depend on services in Fort Totten and the City of Devils Lake. Since most residents in the St. Michael community are above 1,460 feet elevation, the community's cohesion would not be greatly affected. Under the No Action Alternative at a lake elevation of 1,460 feet, the impact described above would be more severe.

(b) Build Alternatives

Direct and Indirect Effects

Any combination of the build alternatives from each of the zones would maintain the access the communities have to community facilities and services outside of the project area and no adverse effects are anticipated. Also, the proposed project would preserve the cohesion of the St. Michael community.

Because the proposed project is not intended to increase capacity, no indirect effects in the form of increase use of community

facilities and services or disrupting community cohesion through changing residential development patterns is anticipated.

Temporary Effects
Construction may cause temporary traffic delays; however, emergency vehicles would be provided immediate access.

Mitigation
No mitigation for impacts to social resources is anticipated.

(c) Effects Due to Rising Lake Waters

Should the Lake continue to rise beyond its current elevation of 1,449 feet to the ultimate elevation of 1,460 feet, the rising waters of Devils Lake would not inundate the community facilities described above or disrupt community cohesion or access to community services.

j) Environmental Justice

(1) Affected Environment

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

Environmental justice considerations are an important component of impact studies for the proposed project. This is because demographics within the project area are considerably different for the Acorn Ridge area as compared to the St. Michael area. Less than three percent of Acorn Ridge's population comprises minority populations. The St. Michael area comprises 84 percent minority populations. Fewer than five percent of the households in Acorn Ridge live below the poverty line. In the St. Michael area, 40 percent live below the poverty line. These data indicate that adverse impacts resulting from the proposed project should not be borne at a more severe level by those populations residing in the St. Michael area as compared to those residing in the Acorn Ridge area. Or, if adverse impacts are to be borne by minority and low-income populations, the proposed project must ensure that mitigation levels are sufficient to offset the adverse impacts.

In accordance with Executive Order 12898, project proponents have worked extensively with community leaders and representatives of SLN and the St. Michael area. Consultation with the SLN has included several face-to-face meetings since the inception of project development in the fall of 2006 and biweekly conference calls. See Chapter 6 for further detail.

The Tribal Council representative of the St. Michael District of the SLN has been involved in several of these meetings. One of the Council representative's recommendations, the building of a perimeter dam surrounding the northeast peninsula of the project area, has been included for consideration in this EA and in project design (Alternative 2-D). In addition to meeting with community leaders, a public meeting was held in September 2006 and a public hearing was held in November of 2007. These meetings were advertised in the City of Devils Lake and in Fort Totten, the urban hubs for Acorn Ridge and the St. Michael area respectively. Media used for the advertisements include the local newspapers, community bulletin boards, and radio stations. Tribal District meetings were held in January of 2008 and were coordinated with Tribal Council representatives.

(2) Environmental Consequences

(a) No Action Alternative

Under the No Action Alternative, if the RAADs were to fail at a lake elevation of 1,449 feet, an estimated 131 residences and four businesses in the St. Michael area would be inundated or stranded due to lost access. In the Acorn Ridge project area, seven residences and one business would be inundated or would lose access. If the Lake were to rise to 1,460 feet, an estimated 165 residences and four businesses in the St. Michael area would either be inundated or stranded due to lost access. In the Acorn Ridge project area, 93 residences would be inundated or would lose access.[4] The No Action Alternative would cut off access to the Spirit Lake Nation Casino and Resort, which is a large employer of members of the Spirit Lake Nation and a major source of tribal revenue to the Tribe. This loss of access could also cause disproportionately high and adverse impacts on minority and low-income populations.

(b) Build Alternatives

Direct and Indirect Effects

All of the build alternatives proposed in the St. Michael area would provide protection for 82 residences and one business within the Commonly Protected Area (**Figure 3-2**) and safer access within the project area and region for both lake elevation scenarios. This would include access to the Spirit Lake Casino and Resort.

Zones 1-3 All Alternatives

In the St. Michael area, the proposed alternatives would lead to the relocation of between seven and 11 residences due to either

[4] The number of residences was estimated using 2005 aerial photos and cross-referencing them with the Federal Emergency Management Agency's study of structures conducted in 2002 and 2003.

inundation, loss of access, or ROW acquisition (**Table 3-6)**. These would be considered adverse effects to those residences. These numbers represent between three and five percent of the residences in the St. Michael area. Between 82 and 119 residences (40-58 percent of the residences in the St. Michael area) would be beneficially impacted by receiving added protection from the proposed project (**Table 3-7)**. All businesses and access to the SLN Casino and Resort would be protected.

Zone 4 - Alternatives 4-A and 4-B

In the Acorn Ridge project area, the proposed alternatives would lead to the relocation of between three and 10 residences due to either inundation, loss of access, or ROW purchase. These numbers represent between two and six percent of the residences in the Acorn Ridge project area. One business would be inundated under Alternative 4-A. These would be considered adverse effects to those residences and business. Between zero and 15 residences (zero to eight percent of the residences in the Acorn Ridge Area) would be beneficially impacted by receiving added protection from the proposed project (**Table 3-7)**. One business may have added protection under Alternative 4-B.

Comparing the number of residences potentially adversely affected between the two populations (**Table 3-17)**, there is no disproportionate adverse effect. The beneficial effect is considerably greater in the St. Michael area. Therefore, the proposed project does not pose potential environmental justice concerns.

Table 3-17. Environmental Justice Considerations

	Acorn Ridge Area	St. Michael Area
Total residences within the project area	**179**	**204**
Possible relocations (adverse effect)	**3-10 (2-6%)**[1]	**7-11 (3-5%)**[1]
Possible added protection (beneficial effect)	**0-15 (0-8%)**[1]	**82-119 (40-58%)**[1]

1 Percent of the number of residences within the project area with either adverse or beneficial effects resulting from selection of build alternatives.

No indirect effects with regard to environmental justice concerns are anticipated from this proposed project.

Temporary Effects

Construction activities related to the proposed project would cause temporary delays and detours. These impacts are anticipated to be borne equally by all populations within the project area.

Mitigation
No environmental justice concerns are present; therefore, no mitigation is required.

2. Wetlands and Other Waters of the U.S.

Executive Order 11990 directs federal agencies to "provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." Section 404 of the Clean Water Act regulates any discharge of dredged or fill material placed into jurisdictional wetlands or other waters of the U.S.

Wetlands are defined both in the 1977 Executive Order 11990, *Protection of Wetlands,* and in Section 404 of the Clean Water Act of 1986, as those areas that are inundated by surface or ground water with a frequency to support a prevalence of vegetative or aquatic life requiring saturated or seasonally saturated conditions for growth and reproduction. Three parameters that define a wetland, as outlined in the USACE's *1987 Federal Manual for Delineating Jurisdictional Wetlands*, are hydric soils, hydrophytic vegetation, and hydrology. Wetlands generally include swamps, marshes, sloughs, prairie potholes, wet meadows, river overflows, and natural ponds. The USACE's North Dakota Regulatory Office does not recognize ponds artificially created on the landward side of RAADs or perimeter dams as jurisdictional wetlands if they have no significant nexus to Traditional Navigable Waters. Waters of the U.S. include streams, rivers, lakes, and other surface waters, including wetlands. They are defined in 33 CFR Part 328 and include, in part, lakes used by foreign or interstate travelers for recreation purposes, and tributaries to these lakes. Devils Lake falls into this category.

Wetlands and other waters of the U.S. occur throughout much of the project area. The rising waters of Devils Lake have lead to a corresponding rise of the water table, an ideal condition for forming large open water/wetland/riparian complexes. Smaller wetlands also occur along roadside drainages within the project area.

a) Affected Environment

(1) Wetlands

Using methods outlined in the *1987 USACE Wetlands Delineation Manual*, a wetland delineation was performed in the spring and fall of 2006 (*ERO 2006*) and in the spring and summer of 2007 (*ERO 2007d* and *2007h*). Wetlands were delineated and then classified using the Montana Method, a classification system that gives a landscape context to the U.S. Fish and Wildlife Service classification system (*Cowardin et al. 1979*) by combining it with a hydrogeomorphic (HGM) approach (*Brinson 1993*).

Four Montana Method wetland types were identified in the project area:

- Lacustrine fringe, lacustrine littoral emergent persistent
- Depressional, palustrine, emergent persistent

- Depressional, palustrine, scrub/shrub
- Depressional, palustrine, aquatic bed

Wetlands were primarily located along the edges of the road in roadside ditches, along the lake fringe, or in low-lying areas. All wetland hydrology in the project area appears to come from ground water saturation or from adjoining lake surface saturation (*ERO 2006, 2007d,* and *2007h*). Many wetlands in the project area are depressional and have wetland hydrology because of their low elevation and close contact with ground water. Other wetlands are littoral (or lake-related) and have wetland hydrology due to surface saturation and connectivity to adjoining lakes. A total of 66.4 acres of wetlands are located within the proposed project corridor.

(2) "Fill into waters of the United States will require a Section 404 permit from the USACE. Furthermore, Part 230.10(a) of the 404(b)(1) guidelines states, "...no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." Practicability is based on cost, logistics and existing technology. In coordination with the USACE, the FHWA will determine one Least Environmentally Damaging Practicable Alternative (LEDPA) for Zones 1-3, since these zones are interrelated through their connection within the Commonly Protected Area. A separate LEPDA will be determined for Zone 4.

(3) Other Waters of the U.S.

Other waters of the U.S. present within the project area are classified as Open Water type, and can be further subdivided into deepwater and pond areas. Most of the open water areas within the project area are deepwater portions of Devils Lake that are subject to wave action and are deeper than 6.6 feet. Pond areas are less than 6.6 feet deep and consist of smaller, pooled areas of water, found on the landward side of some RAADs and perimeter dams in the project area. These areas tend not to be subject to wave action due to their size and protection from wind by their associated RAADs and perimeter dams.

(4) Riparian Areas

The project area was also reviewed for riparian areas. For the purposes of this project, riparian areas were defined as areas that occur along the banks of rivers and streams and that are generally characterized by a prevalence of hydrophytic vegetation, but do not meet other criteria for wetlands. One riparian area was found in the project area; however, it is located outside of the proposed project corridor and would not be impacted.

b) Environmental Consequences

(1) No Action Alternative

Chapter 2 presents the No Action Alternative, including the possibility of alterations to the road structures made on an emergency basis. However, it is impossible to predict at this time exactly what the impacts to wetlands would be under the No Action Alternative. Raising of roads to prevent overtopping and failure could presumably occur under an emergency permitting process, and wetlands impacts could be disclosed at that time. For the purposes of the following analysis, the No Action Alternative will assume no further work to the embankments.

Under the No Action Alternative, wetlands and other waters of the U.S. will continue to be affected by the rising waters of Devils Lake and their boundaries will shift naturally as the Lake rises from 1,449 feet to 1,460 feet. However, no additional fill would be placed in wetlands. If the roads were to fail or be overtopped, some existing wetlands would be inundated and some new wetlands could form as the Lake boundary expands.

(2) Build Alternatives

(a) Direct and Indirect Effects

All of the build alternatives involve the creation of a new structure (new perimeter dams) or the expansion of an existing structure (raising and improving RAADs, raising and equalizing RAADs, or raising existing perimeter dams), which would result in the placement of fill into wetlands or open water areas. Placing fill into a wetland is a permanent adverse effect to the wetland. Direct effects of the proposed project are based on the proposed cut and fill limits within the construction corridors. **Table 3-18** lists adverse direct effects to wetlands and other waters of the U.S. for each alternative. The greatest number of wetlands that would be filled is 64 acres and the least is 47.6 acres.

The agency responsible for final design and construction would obtain all necessary permits pursuant to the Clean Water Act, as noted in **Table 1-1**.

The main indirect effect of the build alternatives on wetlands would be the flooding of wetlands as a result of equalization of any RAADs. Some wetlands would be flooded immediately upon completion of the equalized structures at the lake elevation of 1,449 feet. Additionally, wetlands would be flooded as the waters continue to rise to 1,460 feet. The USACE has indicated that, since these wetlands are not receiving fill and may one day again become wetlands if the lake levels go down, this is not considered

to be a permanent loss, and does not warrant mitigation (*Cimarosti 2006*). In addition, artificial wetlands may be incidentally created on the landward side of RAADs and perimeter dams as a result of ground water seepage and interior drainage.

Table 3-18. Impacts (Fill) to Wetlands and Other Waters of the U.S. (acres)

Alternative	Wetlands Impacted	Other Waters of the U.S. Impacted
No Action	**0**	**0**
Zone 1		
1-A	24.3	31.9
Zone 2		
2-A	10.6	8.6
2-B	10.7	8.6
2-C	16.4	17.2
2-D	13.5	8.5
2-E	9.9	7.9
Zone 3		
3-A	12.0	26.6
3-B	14.0	26.5
Zone 4		
4-A	9.3	7.7
4-B	1.4	7.5
Most Impact*	**64**	**73.8**
Least Impact**	**47.6**	**83.4**

*Gray-shaded columns represent the preferred alternatives in each Zone

* "Most Impact" refers to the combination of build alternatives that would produce the greatest amount of impact.

** "Least Impact" refers to the combination of build alternatives that would produce the smallest amount of impact.

Additional indirect effects may occur during the construction stage or incidental with ongoing maintenance. These effects include the potential for the release of sediments into waters or wetlands due to erosion of soils disturbed as a result of construction, as well as the potential for accidental release of oils, gas, and solvents into jurisdictional waters.

(b) Temporary Effects

Temporary effects to wetlands and other waters of the U.S. may result from the construction of the project structures, specifically construction access and staging areas. The establishment of cofferdams would have temporary effects on waters of the U.S. as areas are dewatered prior to construction. Some types of cofferdams require the placement of temporary fill. Placement of fill in the water would occur in compliance with the proposed project's Section 404 permit. Following construction, the cofferdams would be removed and the construction area would return to open water.

(c) Mitigation

Permanent impacts to jurisdictional wetlands would be mitigated as agreed to with the USACE through the establishment of a wetland mitigation site. Non-jurisdictional wetlands will be mitigation under E.O. 11990. Both USACE jurisdictional and non-jurisdictional wetlands may be included in a single mitigation plan. Presently, the FHWA is in the process of identifying mitigation sites.

3. Water Quality

The Federal Water Pollution Control Act, as amended by the Clean Water Act (CWA) of 1977, provides the authority to establish water quality standards, control discharges in surface and subsurface waters, develop waste treatment management plans and practices, and issue permits for discharges under Section 402.

a) Affected Environment

Devils Lake has had water quality issues throughout recorded history. Explorer Joseph Nicollet recorded in 1839 that the water in Devils Lake was too salty to drink (*DLBJWRB 2006*). Because Devils Lake is a terminal Lake, and only flows into the Sheyenne River once the Lake's elevation reaches approximately 1,459 feet, the nutrient load of the Lake has been increasing in the Lake as a whole since the last natural overflow (*DLBJWRB 2006*). Water quality concerns focus mainly around the concentration of dissolved solids. According to the USGS, Devils Lake is characterized by large fluctuations in these solids, which correspond inversely to water level. Since the beginning of the wet cycle in 1993, however, water quality in Devils Lake has dramatically improved, with decreases in total dissolved solids (TDS) and total dissolved sulfates corresponding to the rise in water levels (*DLBJWRB 2006*). Any pollution in the Lake has become much more diluted as the waters have risen.

b) Environmental Consequences

(1) No Action Alternative

If No Action is undertaken, the existing roadway structures would remain in place. In the event of overtopping, sediment from the structures could enter the Lake, with minor impacts to water quality. Construction occurring under emergency conditions may result in temporary impacts to water quality from sediment or incidentally-spilled petroleum products. Inundation of structures, abandoned vehicles, and any other materials may impact water quality. Shortened planning times may result in a less-robust sediment-prevention plan than the proposed action.

(2) Build Alternatives

(a) Direct and Indirect Effects

All build alternatives in open water areas involve the placement of fill into open waters, which have the potential to degrade the lake water quality due to increased sedimentation. An increase in turbidity of surface waters due to sedimentation could have a negative impact on aquatic life. Once the cofferdams are removed, there is the potential for wave action to cause slight erosion from the structures, resulting in sedimentation into the Lake. However, riprap placed over the surface of the fill would prevent most erosion. In comparison to the total volume of Devils Lake, the amount of sediment that may enter the Lake resulting from the proposed project is expected to be negligible and to have little or no effect on the overall water quality of Devils Lake. Indirect effects could occur if incidental spills of petroleum products from construction equipment were introduced into the Lake.

Under all build alternatives, an NPDES Permit would be obtained from the U.S. Environmental Protection Agency for Tribal Lands and from the North Dakota Department of Health for all other lands. Additionally, a CWA Section 404 Permit would be obtained during the permitting process from the USACE. Permanent and temporary Best Management Practices will be used to minimize water quality impacts during and post construction.

By reducing the risk of structural failure, the proposed project has an indirect beneficial effect on water quality by reducing the risk of the introduction of a large amount of sediment into Devils Lake if a structure were to overtop or fail.

(b) Temporary Effects

Construction activities themselves also have the potential to temporarily degrade water quality as a result of sedimentation and soil erosion during construction. Disturbance of waterway bottom sediment could also occur, although this would be expected to settle back out of the water over time. Temporary cofferdams would be constructed in wet areas to allow the work to occur “in the dry.” The cofferdams could be constructed of fill, water bladders, or other suitable methods that may introduce sediment into Devils Lake. Implementation of BMPs in the design of the selected alternative will be used to control water quality impacts.

(c) Mitigation

BMPs for sediment control and for the prevention of the release of pollutants into any water bodies would be used in any build alternative.

4. Floodplains

a) Affected Environment

Floodplains constitute lands situated along rivers and their tributaries that are subject to periodic flooding with a one percent chance of being flooded in any given year, on the average interval of 100 years or less. Per Executive Order 11988, *Floodplain Management*, issued in 1977, certain criteria apply to this project. Potential effects of floodplains and alternatives that avoid adverse affects and incompatible development in floodplains must be evaluated. If it is found that the only practicable alternative requires work in a floodplain, it is necessary to design or modify the project in order to minimize potential harm to or within the floodplain. According to FEMA floodplain maps, the floodplain elevation for Devils Lake is 1,450 feet or above, depending on the location within the Lake. The SWC did not identify any floodways in the project area. Nearly all work considered for the proposed project occurs within the 100-year floodplain, and there is no a practicable alternative to avoid working within the floodplain, as the RAADs themselves are located within the floodplain.

b) Environmental Consequences

(1) No Action Alternative

If No Action is undertaken, there would be no additional effect to the floodplains of Devils Lake except for those caused by the natural change in water elevation.

(2) Build Alternatives

(a) Direct and Indirect Effects

All of the build alternatives include some construction within the floodplain area. There is no practicable way to avoid construction within the floodplain, as all of the proposed project roads are located within the floodplain. A non-structural floodplain development permit would be required to implement any of these alternatives. None of the build alternatives would cause a measurable increase to the 100-year base flood elevation (*FHWA 2007a*).

According to a study conducted by FHWA's hydrology staff (**Appendix C)**, the project area encompasses less than four percent of the overall area of Devils Lake. Implementation of the proposed project would have minor impacts on other portions of the Lake. If

the proposed project were to be implemented without any of the equalization options, it is estimated that Devils Lake would outlet into Tolna Coulee approximately three to four days earlier than it would if the entire project area were equalized.

There would be no indirect effects to floodplains.

(b) Temporary Effects

There would be some temporary work in the floodplains, such as the building of cofferdams. There is no practicable alternative to working within the floodplain.

(c) Mitigation

No mitigation is required for the work in the floodplain.

5. Threatened and Endangered and Sensitive Species

a) Affected Environment

Per Section 7 of the Endangered Species Act of 1973 (ESA), as amended, each federal agency is required to ensure two criteria. First, any action funded or carried out by such agency must not be likely to jeopardize the continued existence of any federally listed endangered or threatened species or species proposed to be listed. Second, no such action can result in the destruction or adverse modification of habitat of such species that is determined to be critical by the Secretary of Interior. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future.

In accordance with Section 7, the study corridor was evaluated to determine the potential for occurrences of federally listed threatened and endangered species. A biological assessment (*ERO 2007a*) and addendum (*ERO 2007e* and *2007*i) and consultation with the U.S. Fish and Wildlife Service (USFWS) have identified three federally listed threatened or endangered species potentially located within Benson and Ramsey counties: whooping crane, gray wolf, and the piping plover. In addition, the sensitive bald eagle is found within the Devils Lake area. **Table 3-19** presents the USFWS list of threatened and endangered and sensitive species and expected impacts. Following is a brief description of each listed species.

Table 3-19. Federally Listed Species and Sensitive Species Potentially Occurring in Project Area

Species	Scientific Name	Status	Habitat Present	Impact
Birds				
Bald eagle	***Haliaeetus leucocephalus***	**Sensitive**	**Possibly**	**May impact**
Piping plover	***Charadrius melodus***	**FT**	**No**	**NE**
Whooping crane	***Grus americana***	**FE**	**No**	**NE**
Mammals				
Gray wolf	***Canis lupus***	*****	**No**	**NE**

FE = Federally Endangered; FT = Federally Threatened; NE = No Effect
*Removed from listing with lawsuit pending
Source: USGS 2007a; USFWS 2007a

Gray wolf—The gray wolf is not currently listed as endangered under the ESA. The Western Great Lakes population (including North Dakota) was removed from ESA listing on March 12, 2007. However, a Notice of Intent to Sue was filed regarding the removal. For this reason, the FHWA regards the matter as not yet fully resolved and therefore, the gray wolf will be included in this assessment.

The USFWS reports that there are transient wolves dispersing primarily from Minnesota packs. Currently, primary habitat for this species in North Dakota exists in the forested areas in the north central and northeastern areas where human populations and roadway densities are low. There is no evidence of wolf packs, dens, or breeding territories currently occurring in the state (*USFWS 2003*).

Piping plover—the piping plover is federally listed as threatened under the ESA. This species inhabits barren or sparsely vegetated areas consisting of sandy or gravelly beaches, sandbars, or alkaline wetlands (*NDGF 2004*). Critical habitat for this species was designated for the Northern Great Plains Breeding Population on September 11, 2002. Critical habitat includes prairie alkali habitat in eastern Benson and nearby Eddy counties. The project area is located outside of designated critical habitat for the piping plover in western Benson County nor does it possess the habitat types this species prefers. Piping plover are not expected in the project area, and there have not been any recently recorded sightings in the project area (ERO 2007a).

Whooping crane—the whooping crane is federally listed as endangered under the ESA. The last breeding record in North Dakota was in McHenry County in 1915. The flock that migrates between the Gulf of Mexico and the Northwest Territories migrates through North Dakota. The species has been observed mostly in the western two thirds of the state (*NDGF 2004*). Four whooping cranes were observed in North Dakota in the spring of 2006, approximately 100 miles southwest of the project area (*Tribune 2006*). No records of occurrences could be found for this species in Benson and Ramsey counties.

Bald eagle—during the course of writing this EA, the bald eagle was delisted and is now a sensitive species. Though the bald eagle is no longer afforded protection under the ESA, it will continue to be protected by the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA mandates that bald eagles may not be killed or harassed. The bald eagle is a large North American bird of prey with a historical distribution throughout most of the United States. The bald eagle was originally listed as an endangered species in 1978. Population declines were attributed to habitat loss, the use of organochlorine pesticides, and mortality from shooting. Since the species was listed, the population trend for the bald eagle has been increasing. The bald eagle was downlisted from endangered to threatened in 1995 and then delisted entirely in August 2007.

Bald eagles prefer large rivers and lakes bordered with mature stands or large trees or snags. Breeding habitat often includes edge habitat and relatively open canopy. Nests are relatively close to water, typically less than 1.25 miles. Bald eagles are opportunistic and feed on a variety of fish, mammals, birds, and carrion (*NDGF 2004*). The NDPRD (*2007*) indicates no recent occurrences of the bald eagle in the project area. The closest breeding records appear to be in Minnewaukan Flats, located about 24 miles west of the project area (*NDDOT 2004*). However, conversations with USFWS representatives (*Bicknell 2007*) indicate that bald eagles have the potential to re-establish a nest within the Devils Lake area.

b) Environmental Consequences

(1) No Action Alternative

If No Action is undertaken, there are expected to be no effects on listed or sensitive species.

(2) Build Alternatives

(a) Direct and Indirect Effects

The proposed project is determined to have no effect on federally listed species because these species are not expected to occur within the project area. The proposed project may have effects on the bald eagle. There are no known nests in the project area. However, bald eagles have the potential to establish a nest in the project area. If a nest were to be established, construction noise would have the potential to disturb nesting eagles. In the event that a bald eagle nest is established within the project vicinity, the FHWA would consult with the USFWS, under the BGEPA, regarding any necessary avoidance measures during the nesting season.

The proposed project is not expected to have any indirect effects on listed or sensitive species.

(b) Temporary Effects

The proposed project is not expected to have any temporary effects on listed or sensitive species.

(c) Mitigation

No mitigation is required for listed or sensitive species. In the event that bald eagles are found nesting within the project area, the FHWA would consult with the USFWS regarding any necessary avoidance measures to be taken during the nesting season.

6. Cultural Resources

Section 106 of the National Historic Preservation Act of 1966, as amended, requires that federally funded projects be evaluated for effects on cultural resources included in, or eligible for listing on, the National Register of Historic Places (NRHP). To comply with this Act and to properly consider the effects of the proposed project on important cultural resources for NEPA compliance issues; cultural resources that may be affected by the proposed project were identified, and, when necessary, evaluated.

a) Affected Environment

The FHWA conducted a Class III intensive pedestrian survey of the project area in advance of project development activities (*ERO 2007b* and *ERO 2007f*). Much of Zone 1 and Zone 4 had been previously surveyed for other projects. Previous cultural inventory associated with Phase 1 of the proposed project included Zone 4 and survey undertaken by the NDNG completed inventory of the Camp Grafton area in Zone 4 in 2001 (*Jackson and Kordecki 2003*). Four cultural resource sites are located within the Zone 2 project corridors.

(1) Zone 2

The first site consists of what are believed to be two historic graves located side by side. Although identification of these two features as graves is not conclusive, the available evidence suggests they are historic human burials. Individual graves are usually not eligible for listing in the NRHP unless associated with a person of historic significance (36 CFR 60.4). However, burials are protected under the Native American Grave and Repatriation Act, 1990, as amended (NAGPRA).

The second cultural resource identified was a two-track road. However, because the two-track road does not display unusual engineering qualities nor is associated with known historic events or persons, it is not eligible for listing in the NRHP, and will not be further discussed.

The remaining two sites would only be impacted under Alternative 2-D. One is a historic structural site that is not considered eligible for the NRHP, and will not be discussed further. A second possible mound site containing bison bone and charcoal was also found. This site may be eligible for the NRHP, and would require further investigation.

In addition to the survey data, a reasonable and good faith effort was made to identify traditional cultural properties within or adjacent to the project area in accordance with the guidelines presented in National Register Bulletin No. 38 (*National Park Service 1990, with revisions*). The SLN was consulted regarding traditional cultural properties and did not identify any potential conflicts other than the burial sites. However, the SLN has requested identification of affects to traditional cultural and traditional medicinal plants. Although no specific locations have been identified, these plants may be located within the project area.

b) Environmental Consequences

(1) No Action Alternative

If No Action is undertaken, the burial sites may be inundated by Devils Lake should the Lake rise to 1,460 feet elevation. North Dakota automatically assumes burials have tremendous information potential (*Borchert 2006*). If the graves are inundated, historic information may be temporarily lost until the lake waters recede. Additional unidentified cultural resources and traditional cultural and medicinal plants may also be flooded and temporarily lost.

(2) Build Alternatives

In assessing effect to cultural resources, only ground-disturbing activities were considered given that inundation is not considered a permanent effect. In consultation with the North Dakota State Historic Preservation Office (SHPO), it was determined that flooding of cultural resources as a result of equalization is not an effect requiring mitigation.

(a) Direct and Indirect Effects

Zones 1, 3, and 4 contain no cultural resources that would be affected by ground-disturbing activities.

In Zone 2, the burial sites would be avoided by any of the build alternatives. If necessary, fencing would be used to ensure that they would not be disturbed. With the avoidance of the burial sites, this project would have no effect on historic properties.

In the event that the mound site is eligible for the NRHP, the site would be avoided. If it does not appear possible to avoid the mound, further consultation with the SHPO, SLN, and other Tribes, as needed, will take place, and further investigation to confirm that the mound is a burial may be warranted.

Traditional cultural and medicinal plants may occur throughout the project area. Some of these areas may be destroyed during project construction, and some may be inundated by equalization. Impacts to traditional cultural and medicinal plants due to the project are

expected to be less than the impacts of the No Action alterative.There are no indirect effects expected as a result of this project.

(b) Temporary Effects

There are no temporary effects expected as a result of this project.

(c) Mitigation

Cultural resources would be avoided; therefore, no mitigation for cultural resources is needed. If previously unknown cultural resources would be inadvertently discovered during construction, work would stop in the immediate vicinity and the SHPO, the SLN, and other appropriate Tribes would be notified by the agency administering the construction contract. If it is determined that such resources are burials or are eligible for listing in the NRHP, mitigation measures would be developed in consultation with the SHPO, SLN, and tribe(s) and implemented.
SLN will notify the FHWA of the location of any important traditional cultural or medicinal plants. The implementing agency will coordinate with SLN to either avoid or mitigate for the loss of the plants.

7. Hazardous Materials

a) Affected Environment

Hazardous material means any substance, pollutant, or contaminant listed as hazardous under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations (found at 40 CFR 302). The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, 42 U.S.C. 6901 et seq., and its regulations. Federal agencies have the responsibility to identify and correctly dispose of any hazardous materials disturbed by project work.

The FHWA conducted a hazardous materials transaction screen process of the proposed road, RAADs, and perimeter dam corridors (*ERO 2007c* and *2007g*) in accordance with the “Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process” (*American Society for Testing Materials E 1528-06 2006*). The transaction screen process consists of asking questions of owners and occupants of the property, observing site conditions at the property, and to the extent reasonably ascertainable, conducting limited research regarding government records and standard historical sources. The length of the roads, RAADs, and perimeter dams were walked during the site visit, and the property was visually inspected for potential environmental concerns. **Table 3-20** lists sites potentially located within the proposed project construction limits.

b) Environmental Consequences

(1) No Action Alternative

If No Action is undertaken, the recognized environmental conditions would remain in place unless the county or the landowners take steps on their own to remove them. Some waste sites may be inundated, possibly negatively influencing water quality.

Table 3-20. Impacts to Hazardous Materials

Alternative	Hazardous Materials within Construction Limits or Potentially Inundated due to Equalization
Zone 1	
1-A	One partially full 55-gallon drum and one empty 55-gallon drum, three empty above-ground storage tanks (AST), a burned mobile home, and abandoned household appliances, fuel dispenser, and vent pipe
Zone 2	
2-A and 2-B	Two empty ASTs and one 55-gallon drum
2-C	None
2-D	Eleven 55-gallon drums, one 30-gallon drum, two fuel oil tanks, one 1,000-gallon steel tank, four ASTs, nine solid waste disposal sites (SWDS) containing various drums and appliances and other items, numerous abandoned vehicles, two abandoned residences with SWDS, one occupied residence, and two septic tanks
2-E	Five SWDSs, three 55-gallon drums, several abandoned vehicles, one collapsed mobile home, three ASTs, two fuel oil tanks, and one occupied residence with a septic tank
Zone 3	
3-A and 3-B	Two empty 55-gallon drums, former gas station with associated vent pipes, and one empty AST
Zone 4	
4-A and 4-B	One empty 55-gallon drum, two empty ASTs, four fuel oil tanks, two containers containing waste oil, AST partially full of diesel fuel, and a pad-mounted transformer

(2) Build Alternatives

(a) Direct and Indirect Effects

Disturbance of hazardous materials during the course of construction runs the risk of causing leaks that impact soil, water, air, or vegetation. Excavation activities may encounter soil or water contaminated by spills from unrecorded previous activities.

Prior to construction, the implementing agency would investigate any hazardous materials sites within the construction limits that have the potential to involve associated soil or ground water contamination. The implementing agency would then coordinate with the landowner to determine the best approach to address the hazardous materials.

No indirect effects to hazardous materials are expected as a result of the proposed project.

(b) Temporary Effects

This project is not expected to have any temporary effects to hazardous materials.

(c) Mitigation

The responsible agency would ensure that all waste materials that lie within the construction limits are removed and disposed of in a permitted landfill prior to construction activities. Any materials deemed hazardous would be disposed of in a manner appropriate for the waste type. Any hazardous materials would be transported by a licensed hazardous waste transporter. However, using BMPs would minimize potential environmental impacts.

(3) Effects Due to Rising Lake Waters

A database search for hazardous materials was conducted of areas that would be further inundated should Devils Lake continue to rise beyond 1,449 feet to 1,460 feet elevation, and no hazardous materials of concern were identified. This does not preclude the possibility that unidentified waste sites are present and may be inundated, thereby possibly negatively influencing water quality.

8. Visual Resources

a) Affected Environment

The project area is located in a low-land lake basin with a mixture of open prairie and woodlands interspersed with residential development. Distant and mid-distance views for motorists on roads within the project area consist of rolling hills in some areas, with flatland open fields and lake and ponding water. Short-distance views are of lake, trees, open fields, and some residences.

Within the project area, distant and mid-distance views for residents located near the roads, RAADs, and perimeter dams consist of a mixture of the same views as those for motorists. Short-distance views include the same as those for motorists, but include elevated roads, RAADs, and perimeter dams.

b) Environmental Consequences

(1) No Action Alternative

Under the No Action Alternative, views experienced by motorists and residences in the project area would continue to be affected by the rising waters of Devils Lake. The effect would be an increase in views of water, with a decrease in views of open prairie and woodlands. If the Lake rises to 1,460 feet, the increase in views of water for those residences remaining

in the project area at a lake elevation of 1,460 feet would be particularly dominant as nearly 36 percent of the project area would be inundated.

(2) Build Alternatives

(a) Direct and Indirect Effects

For motorists, the proposed project would not affect any meaningful change in the views of the area. Depending on the location of residences in the project area, and depending on the build alternatives selected, visual effects could occur. These effects would include the addition of 13-24 feet of height to some road and/or dam embankments into the mid- and long distance views of some of the areas residents.

The short-distance views of area residences would be affected as follows:

- The proposed embankments of the two perimeter dams in Alternatives 2-D and 2-E would be prominent in the short-distance views of one residence located at the southern terminus of these dams.
- The proposed embankment for ND 20 in Alternatives 3-A and 3-B would be prominent in the short-distance views of two residences if they are not relocated for ROW needs.
- The proposed embankment of the Spring Lake Dam would be prominent in the south short-distance view of one residence.
- The proposed embankment for ND 20 in Alternatives 4-A and 4-B would be more prominent in the short-distance views of residences adjacent to the road.
- The proposed embankment for Military Road in Alternative 4-A would dominate the short-distance views of residences located to the north of the road.

The proposed project is not anticipated to have any indirect effects to visual resources.

(b) Temporary Effects

Localized dust generated from construction activities would intermittently affect the clarity of views for residences and motorists situated in the immediate vicinity of the construction.

(c) Mitigation

Project proponents would coordinate with residences to determine the best means to minimize impacts to viewsheds. Mitigation measures may include revegetation of roads, RAADs, and perimeter dam slopes.

9. Material Sources, Staging Areas, and Access Roads

Based on preliminary estimates for the proposed project, up to three million cubic yards of material may be needed to construct the proposed project to accommodate the ultimate still water lake elevation of 1,460 feet. A number of possible material sites have been identified within the St. Michael area, comprising 400 acres of land. These sites are currently under study to determine if they contain suitable materials for the construction project. Most of these sites are either already in use for construction materials or are being used for agricultural purposes. If these material sites were to be used for the proposed project, there would be no effects to the following resources:

- Infrastructure
- Relocations
- Environmental Justice
- Wetlands and Waters of the U.S.
- Floodplains
- Cultural Resources
- Threatened and Endangered Species
- Section 4(f) Resources

These material sites are accessible from existing roadways so no new infrastructure developments are anticipated as a result of using these sites. Purchase of material is done on a strictly voluntary basis so the proposed project would not require the relocation of homes and businesses for material sources nor do environmental justice considerations apply. Wetlands and waters of the U.S., as well as burial sites and cultural resources eligible for listing on the NRHP, and Section 4(f) resources would be avoided to the extent practicable. There are no threatened or endangered species or floodplains within the material site locations.

The resources below would experience negligible effects.

- Employment and Income – The purchase of the material would have a beneficial impact on the local economy. This anticipated income and employment generation were included in the estimates provided in the "Employment and Income" resource discussion earlier in this chapter.
- Land Use and Farmland – Even if all 400 acres of the sites identified were used as farmland, this would constitute only three percent of the agricultural lands in the project area. Excavation of material would be a temporary impact to farmlands. Once excavation is completed, the site would be reclaimed and can revert back to farmland.
- ITAs – Of the 400 acres of land considered for material sources, approximately 80 acres is allotted trust lands and is currently being used for agricultural purposes. Although this is a considerable use of ITAs, the purchase of material sources would be made from willing sellers only. Because of this, the excavation of material sources on allotted lands used for agricultural purposes would not be an adverse impact to ITAs.

- Water Quality – Harvest of all material sources would be in accordance with the Clean Water Act and would utilize BMPs to avoid sediment entering the waters of Devils Lake. Most material sources are not located directly adjacent to Devils Lake and therefore any impacts to lake water quality would be discountable.
- Hazardous Materials – Once likely material sources have been identified, they would be surveyed for hazardous materials. If hazardous materials are located, the materials would be either properly disposed of or would be avoided.
- Visual Resources – The excavation of these material source sites would change the current view of agricultural land and some woodland areas to gravel pits. This is a temporary impact because once the excavation is completed, the site would be reclaimed by recontouring and seeding.

Additional material source sites as well as staging areas and access roads would be identified once the construction contract is awarded. All of these locations will be surveyed for cultural resources, wetlands, threatened and endangered species, 4(f) resources, and hazardous materials prior to use. If any cultural resources, wetlands, or threatened and endangered species are identified, they would be avoided to the extent practicable. If impacts cannot be avoided, the contractor would document such impacts, have them cleared by the appropriate regulatory agency, and coordinate with FHWA to provide mitigation as needed. If any hazardous materials are identified, they would either be avoided or the contractor would be required to work with the landowners to clean up those sites before materials are taken from the sites.

10. Cumulative Effects

Cumulative effects are the impacts on the environment that result from the incremental impact of the proposed build alternatives addressed in this document when added to other "past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7). The effects of an action may be insignificant when evaluated in an individual context, but can add to other disturbances and cumulatively lead to a measurable environmental change.

Past activities that occurred in the Devils Lake basin area in the mid-20th century that altered the biotic and abiotic features of the landscape include roadway building, and agriculture, commercial, and residential development. In the mid-1990s, when the water levels at Devils Lake began to rise precipitously, road and bridge raising and relocating, perimeter-dam building, homeowner relocations, and property-loss mitigation began to occur. Most recently, US 281 was raised and realigned by the NDDOT on the western side of Devils Lake, and FEMA has conducted a number of relocation efforts.

Present activities in the Devils Lake basin area include farming, continued residential and commercial development, continued resident relocation, and the raising or relocating of the transportation infrastructure. In 2006 and 2007, the roads addressed in this document were raised to an average of 1,453 feet and some had seepage berms added. Also, in the recent past and present, there have been efforts by government agencies such as the USFWS and the Natural Resources Conservation Service to restore ecosystems and wetlands, and to improve water quality. The SWC also constructed an outlet on the

southwestern side of Devils Lake designed to release water from the Lake in an attempt to reduce the threat of flooding. At this time, due to water quality concerns, the outlet is not fully functioning. The incremental affects of this outlet have been addressed in the state's planning document.

Typically, reasonably foreseeable future activities are those activities that are included in planning documents and have been allocated budgets. Such activities can be identified by reviewing local land management plans, state transportation plans, local government budgets, and interviews with local government officials. Reasonably foreseeable activities within the project vicinity include some minor road work proposed by the NDDOT (*NDDOT 2007*). It is also anticipated that as the Lake continues to rise, the NDDOT will continue to raise portions of ND 20 and ND 57 that are not addressed in this project. These roads are already benched and equalized and therefore any additional raises are not anticipated to have any impacts. There are also social and recreational development projects in the SLN including a half-mile pedestrian/bicycle path in the town of St. Michael and a day care facility at the Spirit Lake Casino and Resort. Also, FEMA is leading an effort to raise and/or relocate roads other than those that are on the Federal-Aid system or addressed by the SAFETEA-LU legislation. One other reasonably foreseeable activity anticipated to occur in the area is the City of Devils Lake levee system, which, at its current elevation of 1,460 feet, is considered to be hydraulically inadequate at the ultimate lake elevation of 1,459 feet. The USACE is beginning to conduct a feasibility study and prepare a NEPA document evaluating alternatives for completing and raising the City of Devils Lake levee system. While it is likely that something will be done to address the levee system, the alternatives are preliminary and varied in scope and location making it difficult to estimate the impacts for a cumulative effects analysis.

Actions not considered "reasonably foreseeable" include the USACE's proposal for a separate Devils Lake outlet. Due to political, international, and environmental concerns, it has not been constructed, and the future of this proposed project is uncertain. As a result, the FHWA has determined this action to not be "reasonably foreseeable." Additionally, U.S. Senator Byron Dorgan has convened an interagency committee to examine ways to address the impacts of the rising waters of Devils Lake as a whole. Because Senator Dorgan's interagency committee only began to meet in 2007, future courses of action have yet to be decided and therefore are not considered reasonably foreseeable. Finally, there has been discussion about the armoring of the Tolna Coulee or even preventing the Lake to outlet at the Tolna Coulee at an elevation of 1,459 feet. Further investigation into this issue revealed little to no evidence that this proposal is being pursued at this time. As a result, the FHWA concluded this to be too speculative to be considered "reasonably foreseeable."

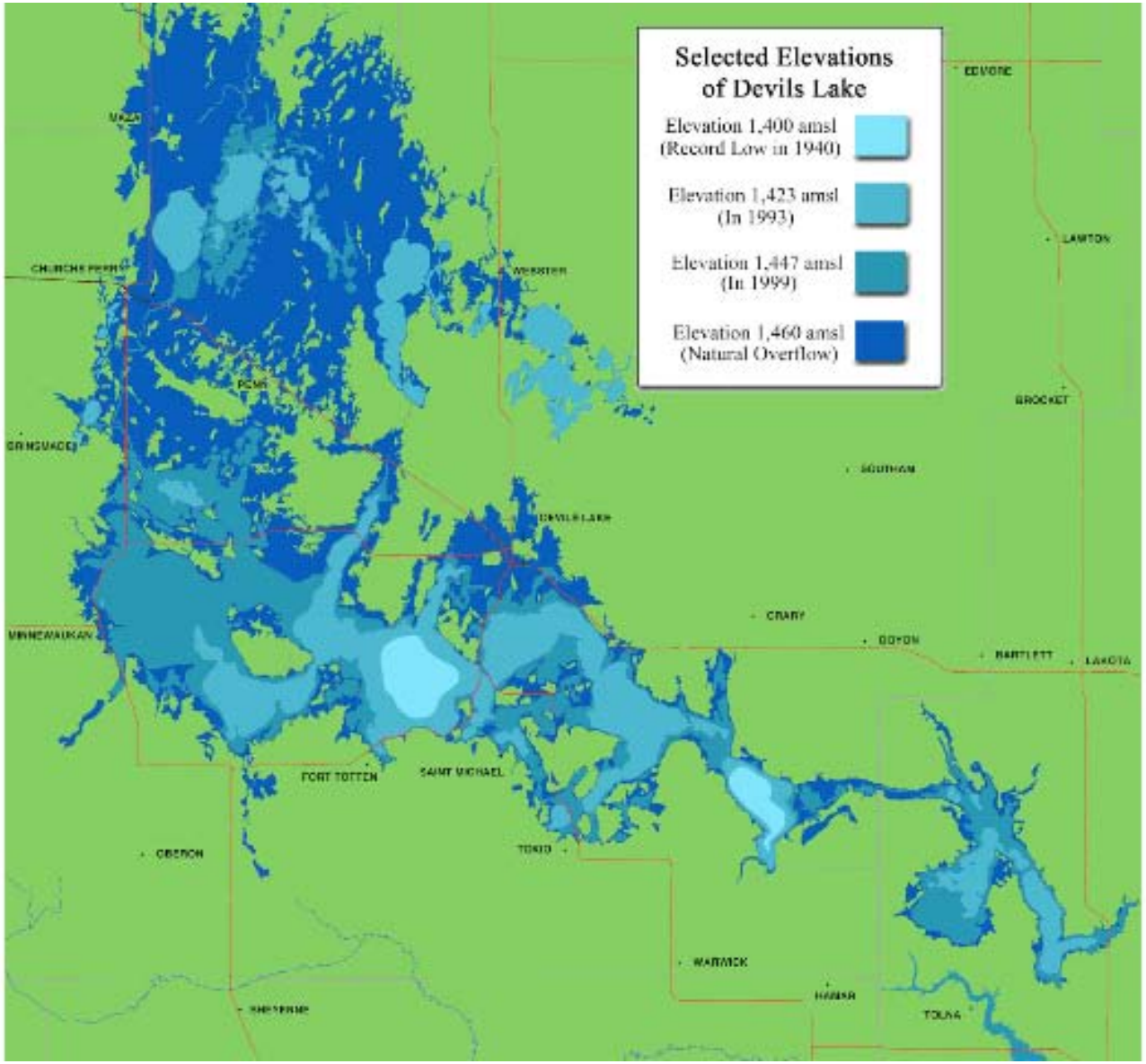
In addition to considering human activities as required by 40 CFR 1508.7, this cumulative effects analysis also needs to consider the natural conditions in the Devils Lake basin. The rising of Devils Lake has created major impacts to the Devils Lake basin and the project area. In the year 1940, at an elevation of approximately 1,400 feet (*NDSWC 2007*), the Lake was at a volume of 29,103 acre-feet, and covered an area of 7,385 acres (*USGS 2007c*). At the most recent high elevation of 1,449.2 feet recorded in

2004, the lake volume increased by 9,300 percent to 2,718,943 acre-feet, and the area covered increased by almost 1,900 percent to 140,199 acres. Should the Lake continue to rise to 1,460 feet, the volume would increase to 4,866,283 acre-feet, 16,700 percent of what the volume was in the year 1940, and the area covered would increase to 274,486 acres, 3,700 percent of the area covered in the year 1940 (**Table 3-21). Figure 3-20** illustrates the dramatic change in area covered as the Lake continues to rise.

Table 3-21. Devils Lake Elevation, Area, and Volume

Year	Elevation (feet)	Area (acres)	Increase over 1940 (percent)	Volume (acre-feet)	Increase over 1940 (percent)
1940	**1,400**	**7,385**	**NA**	**29,103**	**NA**
2004	**1,449**	**140,199**	**1,900**	**2,718,943**	**9,300**
?	**1,460**	**274,486**	**3,700**	**4,866,283**	**16,700**

With the possible exception of the outlets mentioned earlier, the effects of the human-induced actions described above, including those proposed in this document, are negligible in comparison to the effects of the rising water elevation of Devils Lake. The biotic and abiotic conditions of Devils Lake at its historic low in 1940 were dramatically different from the conditions of Devils Lake today. As Devils Lake grows, it floods wetlands, cultural resources, wildlife habitat, and agricultural lands, and creates social, psychological, and economic hardships by forcing landowners to relocate their homes and businesses. In this context, the incremental effects of the proposed Phase II Project are negligible and are briefly described below for each resource addressed in this chapter.



Source: North Dakota State Water Commission

Figure 3-20. Area Inundated as Devils Lake Water Elevation Rises

a) Transportation

This project in combination with other infrastructure projects that have either taken place or that will occur in the reasonably foreseeable future would ensure that safe transportation mobility within the region and project area continues. Because this project is intended to maintain existing capacity and not increase capacity, it is anticipated to have no cumulative impacts to the existing infrastructure.

b) Utilities

This project in combination with other infrastructure projects would have a cumulative impact to utilities. However, project proponents would coordinate with all utility companies that have service lines and facilities to ensure continued service during and after the proposed project.

c) Relocation

In addition to the estimated 656 residential relocations that have already occurred in the region since the mid-1990s, this project could cause the additional relocation of anywhere from five to 16 residences. Although the relocation impacts associated with the proposed project are adverse, the net effect of the proposed project would be the protection of more residences and businesses than would otherwise be protected under the No Action Alternative. As a result, the incremental impact of the proposed project when added to other past, present, and reasonably foreseeable future projects in the region is predominantly positive, though minor, in its overall prevention of residential and business relocations.

d) Land Use and Ownership

This project in combination with other infrastructure projects that have either taken place or that will occur in the reasonably foreseeable future would have an effect on the conversion of land to transportation ROW uses. Additionally, some build alternatives would cause lands to be inundated. However, in combination with all other projects within the region, and within the context of natural events that have been occurring in the region, the incremental impact of this project would be negligible.

e) Agricultural Land

Although the build alternatives would inundate agricultural lands ranging from approximately nine acres to 82 acres and would require between 45 and 80 acres of agricultural land for ROW, the net effect of the proposed project would be the protection of more agricultural land than what would otherwise be protected under the No Action Alternative. The incremental impact of the proposed project when added to other past, present, and reasonably foreseeable future projects in the region is small, though predominantly positive in its overall prevention of lost use of agricultural land.

f) Prime, Unique, and Important Farmlands

The build alternatives could impact between 26 and 52 acres of prime, unique, and important farmlands in the project area. The incremental impact of the proposed project when added to other past, present, and reasonably foreseeable future projects in the region is small given the considerable amount of such farmlands in the project area.

g) Indian Trust Assets

Although the build alternatives would result in inundating some tribal and allotted trust lands ranging from approximately 11 acres to 86 acres, and would acquire between 100 to 145 acres of ITAs for ROW purposes, the net effect of the proposed project would be the protection of more ITAs than would otherwise be protected under the No Action Alternative. The incremental impact of the proposed project when added to other past, present, and reasonably foreseeable future projects in the region is predominantly positive in its overall prevention of lost ITAs.

h) Economic Resources

The effects of this project in combination with other projects that have either taken place or that will occur in the reasonably foreseeable future are generally considered to reduce adverse effects related to the rising lake waters. The inflow of funding from this project in combination with other projects in the region would contribute to income and employment generation. Additionally, this project, in combination with other projects that have ensured transportation mobility within the region, would facilitate economic activity. As a result, the incremental effect this project is anticipated to have on the local economy is anticipated to be small and beneficial.

i) Social Resources

The effects of this project in combination with those that have been undertaken in the past, present, or reasonably foreseeable future are generally considered to reduce the adverse effects related to the rising lake waters, preserve access to community services and facilities, and maintain community cohesion.

j) Environmental Justice

The Devils Lake region has experienced a large number of infrastructure development projects and FEMA-sponsored, property-loss mitigation projects since the mid-1990s due to the rising lake waters. This project has no environmental justice concerns and therefore cannot have any cumulative environmental justice impacts.

k) Wetlands and Waters of the U.S.

Past projects have resulted in impacts to wetlands and waters of the U.S. similar to the proposed project. Future infrastructure projects planned for the near future will likely result in impacts to wetlands and waters of the U.S. Cumulatively,

these projects would result in a greater loss of wetlands than this project alone. However, the loss associated with this project would be offset by wetland mitigation. Also, the losses may be offset by the creation of wetlands should the Lake continue to rise as anticipated. As the water rises, the ground water table also rises, and more low-lying areas fill with water. In addition, the increased shoreline length of Devils Lake as it increases in area will likely create more fringe wetlands.

l) Water Quality

Other construction activities are occurring around the Lake in response to the problem of the rising lake waters. All projects in the waters of Devils Lake at an elevation of 1,447 feet or less require a Section 404 permit. Any project that requires a Section 404 permit must also be in compliance with State Water Quality Standards that are enforced by the NDDOH or, as in the case of tribal lands, Section 303(c) of the CWA. Although specific quantitative data on how much water quality impacts the other foreseeable projects will have is unknown, cumulative water quality impacts are not expected to be major because each project is required to meet either state or federal water quality standards.

m) Floodplains

Future construction activities, including additional raises of ND 57 and ND 20, will likely occur in response to rising lake waters. Also, some kind of work will be done on the City of Devils Lake levee system, though the scope and location of this work is currently unknown. Past projects, such as the city of Devils Lake levee system and the existing RAADs, have occurred in the floodplain of the Devils Lake basin. These actions have altered the natural floodplain of the Devils Lake basin and have accelerated the rise of Devils Lake. The FHWA conducted an analysis of the effects the build alternatives proposed in this document would have on the floodplain's capacity to hold water **(Appendix C)**. Based on this analysis, it was determined that the incremental effects of any of the build alternatives on further accelerating the rise of the Lake would be negligible.

n) Threatened and Endangered and Sensitive Species

None of the build alternatives would have direct or indirect impacts to threatened, endangered, and sensitive species and, therefore, there are no cumulative impacts.

o) Cultural Resources

This project, in combination with past, present, and reasonably foreseeable future actions is not anticipated to have any cumulative effects on cultural resources.

p) Hazardous Materials

Because hazardous materials impacted by the proposed project would be removed and disposed of properly prior to construction, the incremental impact this project would have would be small but beneficial.

q) Visual Resources

Past road raises and perimeter dam construction have increased the road elevations by up to 15 feet. Some of the build alternatives under this project would, at the ultimate roadway elevation of 1,468 feet, raise some portions of roads, RAADs, and perimeter dams by an additional 17 feet. For residences immediately adjacent to these structures, this constitutes a major change in their viewshed. However, when considering the context of the proposed project and the effect the continually rising waters of Devils Lake has had and will continue to have on the visual resources of the area, the incremental effects of the raised structures are negligible.

H. Significance Evaluation

The purpose of preparing an EA is to "provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or a finding of no significant impact (FONSI)" (40 CFR Part 1508.9). If, during the course of preparing the EA, it is determined significant impacts are likely to occur, then an EIS is prepared. If, however, it is determined that no significant impacts would occur based on the analyses and input received from the public, then a FONSI is prepared. The term "significant" is defined broadly to allow for the consideration of project-specific conditions that can vary depending on the type and location of the project. "Significant" requires the consideration of both intensity and context. "Intensity" refers to the severity of the impact. "Severity" can be measured in a variety of ways including, but not limited to—

- the degree to which the proposed action affects public health, safety, and the quality of the human environment
- the degree to which the effects are unknown or may be controversial
- the degree to which the action is precedent-setting
- the proximity of the project to culturally or ecologically critical areas

"Context" refers to the local, regional, and national setting of the proposed action and the interests it affects.

With regards to the intensity of the impacts associated with any of the build alternatives, none of the impacts appear to be severe enough to be considered significant or warrant the preparation of an EIS. The proposed project would beneficially affect public health and safety by making the RAADs safe. The proposed project does not appear to significantly affect the quality of the human environment because much of the proposed work would occur along existing roads and dams and, based on the cumulative effects analysis, this project appears to have no cumulatively significant impacts. The effects of the proposed project are known in that they have been identified at the current lake elevation of 1,449 feet and also at a lake elevation of 1,460 feet. Based on the agency and public scoping meetings conducted for this project (**Chapter 6**) the FHWA does not anticipate the effects to be very controversial. The impacts resulting from the proposed project are similar to those identified in EAs for similar-type projects (*NDDOT 2004*) and, therefore, this project is not considered precedent-setting. Finally, the proposed project is not anticipated to adversely affect culturally or ecologically unique and critical areas, such as threatened and endangered species.

The EA's evaluation indicates that none of the build alternatives would likely have a significant impact to the human environment due to the natural context in which the project occurs. As discussed in the previous "Cumulative Effects" section, the rising of Devils Lake has created major impacts to the Devils Lake basin and the project area. At a lake elevation of 1,449 feet, the Lake has increased in area by 1,900 percent and in volume by 9,300 percent since 1940, inundating over 110,000 acres of land. The rising lake waters have inundated existing transportation networks, forced the relocation of over 600 residents and businesses, flooded agricultural and trust lands, and flooded wetlands and cultural resource sites. Should the Lake continue to rise as anticipated, it could almost double its current volume and area from the current condition. When considering this natural setting, the effects likely to occur under the No Action Alternative, and the mitigation to be provided, the effects of any of the build alternatives on the project area resources do not appear to be severe enough to be considered significant. A final significance determination was made after the agencies and public had the opportunity to review and comment on this document. This determination is available in the FONSI, attached to the front of this document.

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